

The Sabbath-School.

FOURTH SABBATH IN APRIL.

IMPORTANT BIBLE SUBJECTS.

LESSON I.—THE GIVING OF THE LAW.

1. To what place did the Israelites come about two months after they left Egypt? Ex. 19:1.
2. What did the Lord say he would do on the third day afterward? Ex. 19:11.
3. What preparation were the people required to make for this event? Ex. 19:10, 11.
4. What precaution was taken to keep the people from touching the mountain? Ex. 19:12, 23.
5. What was said would be the result if any one should touch it? Ex. 19:12, 13, 21.
6. What dreadful things did the people hear and see on the third day? Ex. 19:16.
7. What caused these things? Ex. 19:20.
8. How was the mountain affected by the presence of the Lord? Ex. 19:18.
9. Who attended the Lord on this occasion? Ps. 68:17.
10. For what purpose did the Lord thus come down on Mt. Sinai? Nehemiah 9:13; Deut. 33:2.
11. Where do we find that which the Lord spoke from Sinai? Ex. 20:1-17.
12. When the Lord had spoken these words, what did the people do? Ex. 20:18.
13. What request did they make? Ex. 20:19; Deut. 5:24-27; Heb. 12:19.
14. Did the Lord grant their request? Deut. 5:28.
15. In what manner did he give them subsequent instruction? Deut. 5:30, 31.

THE HAPPY ART OF ILLUSTRATION.

"You tell what things are, but never what they are like," was the criticism that great preacher, Robert Hall, made once upon a brother minister.

This same criticism might be made upon many a teacher in the Sabbath-school. He knows the lesson, for he has studied it well, and he can tell what he knows in sentences which flow as clearly as a running brook; but somehow what he says runs through the mind of the scholar like water through a sieve, and leaves no trace behind. The truth is taught, but it is not made effective. The nail is driven, but it draws too easily out of the mind, and the labor is lost. Now, my dear teacher, learn to clinch the nail with a well-chosen illustration, and it will stay where it is driven.

For the mind, whether of the child or of the adult, delights in making comparisons. We want to know not only what a thing is, but also what it is like. We hold up as a torch that which is plain, so as to see that which is dark; and we compare truths in the spiritual world with objects which we see in the world of nature. In this way the field of truth is enlarged before our vision, and what we see is not soon forgotten. A word-picture is always a pleasant object to gaze upon, and the teacher who can draw it at will is apt to be the center of a charmed circle.

The fact is, every faculty of the mind can be cultivated if one only knows how, and has the spirit of perseverance. Let not the faithful teacher despair. He has imagination, and he can perceive the force and beauty of the illustrations which others use; and if so, he can, by perseverance, make some of his own.

The teacher would do well to study the method which was followed by the divine Teacher. He taught first by precepts, clearly and briefly stated, and then he added the parables. Hence "the common people heard him gladly." The method of teaching by parable, which is but one form of illustration, has ever been a favorite method in the East, and there is a peculiar charm about it.

Let no man think that to teach by illustration is only a method for children. It is suited for them, and it is suited for all others. It breaks upon a subject like a burst of light through a storm-cloud, and sometimes it has all the force of an argument. It makes the theme linger in the memory. Never undervalue the art of illustration. Learn to practice the art, and then the dry and dreary desert of your instruction will blossom with flowers.—*S. S. Journal.*

NEXT to a superintendent, in the power of making and shaping a Sabbath-school, comes the secretary; indeed, no superintendent can do his best work in and for a Sabbath-school without the aid of a good secretary. The secretary's work enables the superintendent to see his school as it is, both in its membership and in its habits; it also enables him to hold up before his teachers the dangers and the possibilities of the school. Without the work of a good secretary, any Sabbath-school is liable to lose scholars and teachers almost imperceptibly; with a good secretary, a Sabbath-school can be kept up to its own best standard of regularity in the attendance of both scholars and teachers. He who can fill a secretary's place, may feel that his position is one of large responsibility and influence. And whoever would promote the best interests of a Sabbath-school, may feel that he is doing so when he co-operates heartily with the superintendent and the secretary of that school.—*S. S. Times.*

Our Scrap-Book.

YOUR FRIEND.

THE friend who holds a mirror to your face,
And hiding none, is not afraid to trace
Your faults, your smallest blemishes within;
Who friendly warns, reproves you if you sin—
Although it seems not so—he is your friend.

But he who, ever flattering, gives you praise,
But ne'er rebukes, nor censures, nor delays
To come with eagerness and grasp your hand,
And pardon you, ere pardon you demand—
He is your enemy, though he seem your friend.

RAILROADS FIFTY-THREE YEARS AGO.

WITH such a net-work of railroads as is stretched over our continent to-day, the young people can hardly realize that a little more than half a century ago there were no cars. The *Boston Free Press* says:—

"It is just fifty-three years ago since the first trip was taken on the Albany & Schenectady Railroad. The cars were coach-bodies from an Albany livery-stable, mounted on trucks. The trucks were coupled with chains, leaving two or three feet slack, so that when the train started, the passengers were jerked from their seats; and in stopping, were sent flying back. The locomotive fuel was pitch-pine, and a dense volume of the blackest smoke floated toward the train. Those on top of the coaches had to raise their umbrellas; but in less than a mile, the cloth was burned off, and the frames thrown away. The passengers spent the rest of the time in whipping each other's clothes to put out the fire, the sparks from which were as big as one's thumb-nail. Everybody had heard of the trip, and came thronging to the track as though a presidential candidate were on exhibition. They drove as close as they could get to the railroad, in order to secure a place to look at this new curiosity. The horses everywhere took fright, and the roads in the vicinity were strewn with the wrecks of vehicles. At first the stage custom of 'booking' passengers—entering their names—prevailed; but it fell into disuse. One list reads: 'Boy, Lady, Stranger, Friend, Whiskers.' A Boston paper said a railroad to that city would be as useless as one to the moon. A member of the Massachusetts Legislature opposed it on the ground that nobody ever heard of such a thing, and it would be improper to take people's land for a project that no one knew about."

THE BIRD AND THE MIRROR.

THE following pleasing story, clipped from an exchange, matches well with Eld. Canright's canary-bird story printed in a late *INSTRUCTOR*:—

"At Visalia, California, there is an open shed in the rear of a workshop, and in the shed is a shelf upon which stands a looking-glass. Not many weeks ago a bird flew by chance into the shed, and caught sight of its own image in the mirror. Doubtless the bird at first thought it was another winged creature of its kind, for it alighted in front of the glass, and approached it with caution. When it found that the image was harmless, it began to cut some very queer capers. It danced a jig, and then paused with uplifted wings to mark the effect of its antics. There stood the image in just the same attitude, and when the bird pecked at the image, the image pecked back at the bird. Then the bird tossed its tiny head from side to side, shook its pretty plumage, and did other coquettish things, much to its own gratification, and the amusement of some boys who stood behind a window-shade a few feet away. By-and-by one of the boys gave such a hearty laugh that the bird heard the noise and darted away like a flash. The next day, however, the little fellow returned, and every day since then it has reappeared before the mirror, and has gone through its capers. It is thought that the bird thinks he has found a mate in the phantom creature in the glass. The species to which the bird belongs is not mentioned by the local paper at Visalia, by which the story is told."

THE STATUE OF PHARAOH.

AS Bible students we are all interested in modern researches in Bible lands, and so we shall be in the recent discovery of what is claimed to be a statue of the Pharaoh who lived in the time of Moses. The account, as published in the *Christian Union*, is as follows:—

"A great red granite statue has been discovered about ten miles from Alexandria, Egypt, in the desert. It represents the famous Pharaoh who was responsible for all the Egyptian plagues, and on one side of it is a statue of a little baby, said to be that of the next Pharaoh, who perished in his rash attempt to drive through the Red Sea. The chief of the coast-guardsmen—Middlemas Bey—discovered it when hunting for smuggled tobacco, so he invited a number of gentlemen to go and see the old fellow raised to the light of day once more. It has been lying there 3,000 years. About eighteen persons met at the little station a short mile off in the desert, and after an hour's crawl in the train, were landed forlornly in the sand, nearly two miles from their destination. They walked to the place and found the statue surrounded by about forty Arabs, who were putting it in readiness to be raised. While the work of preparation was going on, the party wandered about and explored a small staircase leading down into a diminutive chamber. They had a well-known Egyptian, a Mr. Willbor, to explain all the hieroglyphics, etc., and they discovered bits of mosaic pavements by scraping away the sand. All the wisacres present were convinced it is the site of an ancient city, and that many interesting discoveries will be made when Middlemas Bey can set his men to work digging.

"About twelve o'clock rumors went about that the old king was coming up out of his grave, and they all flocked back to welcome him to daylight again after a subterranean existence of 3,000 years. There are no end of hieroglyphics written on his back and up the sides. He is very well carved, and almost perfect, except for the nose, which has succumbed to the wear and tear of existence. The muscles on the arms are well shaped, and he is well shaped altogether, and considered by Mr. Willbor to be a very valuable 'find.'"

STREET-CARS IN PARIS.

SHOULD none of the readers of the *INSTRUCTOR* ever enjoy the luxury of a street-car ride in Paris, the knowledge that others are thus comfortably provided for should afford them satisfaction. The *American Railroad Journal* gives the following interesting description of the Paris street-car system:—

"The street-car system of Paris is as nearly perfect as human ingenuity can make it. The cars run on T-irons, about eight inches high, placed on concrete. This keeps them always even. Hence, riding on a Paris car is so noiseless that one can talk in a whisper, and you can read your paper without having it shaken from your hands every now and then. From the platform a steep stair-way leads to the top, where sixteen people can find seats, an iron railing serving as protection. As soon as a passenger steps on the platform, the fact is registered by the conductor. When every seat is full, a sign, 'complete,' is turned down, and no more will be admitted. Hence, no one ever rides in a Paris car without a seat. It makes no difference what has caused your delay, or how necessary that you should pursue your journey, you will just have to wait. Of course, in such a case one of the 15,000 cabs in the city will soon accommodate you for twenty-five cents. The fare is six cents inside and three cents on top of the cars. Every half mile there is a station where the cars stop. When the weather is bad, the cars become quickly crowded, and you may see three or four of them go by with the tantalizing sign, 'complete,' hanging out. Then you go to the station and take a ticket with your number on it. When the car comes, the conductors call out, one, two, three, according to the number of places he has unoccupied. The remainder of the passengers have to wait for the next."

A LARGE EARTHENWARE MOUND.

FRANK R. STOCKTON, in the November *St. Nicholas*, describes a curious mound lying off some distance from the modern portion of the city of Rome. He says:—

"It is a rounded, green hill, called Monte Testaccio. This hill is a very good example of how the surface of the ground can be gradually raised in the course of centuries. It is one hundred and sixty-four feet in height. It stands near the place where the ancient Roman wharves were situated, at which the ships bringing large jars and other pottery from Spain and Africa unloaded. Such jars as were broken were thrown or piled up here; and it is said that at the end of the second century the mound was about eighty feet high. The fragments of these jars and of other pottery that was landed here have thus gradually formed a little mountain as high as the top of a tall church-steeple. It has been cut into in many places and found everywhere to consist of the same material, and so it may be said to be the largest object in the world that is formed of earthenware. It is long since any broken pottery has been added to the pile, and it is now covered over with soil, on which the grass grows green and luxuriant."

A MAMMOTH SAFE.

A SAFE that is pronounced a marvel of mechanism has just been finished for the National Bank of Scotland by a London firm. This immense money-box, which is wholly of hard steel and weighs close upon one hundred tons, consumed seven months' time in building, and has no less than forty-eight locks. Each door weighs a ton, and the bolts thereon two hundred pounds apiece. The safe is said to be capable of holding five hundred and fifty million dollars in gold bullion.—*Sci.*

Yet notwithstanding its immense capacity and great strength, how insignificant in comparison with the treasure-safe in heaven!

INSECTS IN SNOW.

REV. W. D. WESTERVELT, of Denver, Colorado, writing to the Agassiz Association, says:—

"August 5 [1884], I was coming down one of the highest mountains of Colorado—Grey's Peak. Near the summit was a large snow bank, far above timber-line, in which was a great number of living insects,—flies, mosquitoes, and bugs. Without moving, I counted over twelve different kinds. They were burrowing in the snow, and traveling around in their little caves. Are the banks the breeding-places for the mountain insects, the same as the ponds are the homes of the insects lower down?"

A writer in the *St. Nicholas* says:—

"I have seen new snow in Idaho black with little insects. People there call them snow-flies. They are as lively as possible, and will darken your footprints, walk as fast as you may. They are found only on the high mountains, and are in very fresh and very deep snow. They of course do not annoy you in any way. They are infinitely smaller than the ordinary flea, but they are not a whit less lively in their locomotion."

AN INTERESTING RELIC.

THE carriage in which the First Napoleon made his famous retreat from Moscow, and in which he, as emperor, set out from Paris in the campaign which closed at Waterloo, is now preserved in London among the effects of the Duke of Wellington. It is a two-seated conveyance, and the top, or cover, is lined with thin sheet-iron. There is also a front curtain of iron, which can be lowered at will. The wheels are large and heavy, and the steps at either side silver-finished and of curious design.

The rear seat was the one used by Napoleon. Under the cushion of the seat he carried blankets and pillows. The back of the front seat opens, and at the right hand forms a small cupboard, in which were tin plates, knives, spoons, water can, and a small fluid lamp. On the left is a long opening, extending forward nearly to the "dash board," and into which the emperor of the first nation of Europe was wont to extend his feet and legs, in order that he might lie at full length. The blankets, pillows, spoons, knives, and lamps that were used by the emperor are still preserved.

THE longest bridge in the world is stretched over an arm of the China Sea. Its length is claimed to be 26,000 Paris feet, and it comprises 3,000 arches, or more strictly speaking, openings of pillars. These are not overspread with arches, but there are placed above them large slabs of stone, which form the roadway, 70 feet broad.

The Sabbath-School.

FIRST SABBATH IN MAY.

IMPORTANT BIBLE SUBJECTS.

LESSON 2.—THE TEN COMMANDMENTS DELIVERED TO THE PEOPLE.

[NOTE TO THE STUDENT.—Do not consider the lesson learned until you can give at least the substance of every text, with the correct reference for each. The references in black letters indicate those texts that should be committed to memory. A little diligent application each day will enable you to learn them, although this need not be considered a test of scholarship.]

1. WHAT preparations were required to be made before the Lord came down on Mount Sinai?
2. Describe the appearance of the mount when the Lord descended upon it.
3. By whom was the Lord accompanied?
4. For what purpose did he come?
5. How did the Lord make known this law to the people? Ex. 20:1; Deut. 4:12.
6. When the people begged that they might not hear the voice of God any more, how did they afterward receive instruction?
7. Soon afterward, what did the Lord say to Moses? Ex. 24:12.
8. How long was Moses in the mount? Ex. 24:18.
9. When the Lord had finished the instructions which he gave to the people through Moses, what did he give to Moses? Ex. 31:18.
10. Whose workmanship were the tables? Ex. 32:15, 16.
11. How and by whom was the law written on these tables? Ex. 32:16.
12. When Moses saw the people dancing around a golden calf, what did he do with the tables of stone? Ex. 32:19.
13. After the people had been punished for their wickedness, what command did the Lord give to Moses? Deut. 10:1.
14. What did the Lord say he would write on these two new tables? Deut. 10:2.
15. Did Moses do as he was commanded? Deut. 10:3.
16. What did the Lord then do? Deut. 10:4.
17. What does Moses call that which the Lord wrote on these tables? Deut. 10:4.
18. Then what was it that the Lord spoke from out of the midst of the fire on the mount?
19. After Moses had rehearsed the ten commandments to the people (Deut. 5:7-21), what did he say to them? Deut. 5:22.
20. If the Lord "added no more," then could anything else than what was on the tables be any part of the ten commandments?
21. Repeat the ten commandments. Repeat the fifth; the second; the eighth; the third; the sixth; the ninth; the fourth.

NOTE.

WHEN Moses was in the mount, God gave him two tables of stone made by himself, on which he had graven the "testimony" (Ex. 31:18; 32:15, 16); after these two tables had been broken, Moses, at the command of God, went up into the mount, having in his hand two tables like the first (Deut. 10:1-3); on these two tables the Lord wrote the same matter that was on the first two tables, and that was "the ten commandments." Deut. 10:4. These words, says Moses, the Lord spake in the mount out of the midst of the fire in the day of the assembly; therefore that which was spoken from Mt. Sinai, and written on the two tables of stone, was the ten commandments. Further: Moses, after rehearsing the substance (Deut. 5:7-21) of that which is given in full in Ex. 20:3-17, said: "These words the Lord spake unto all your assembly in the mount out of the midst of the fire, of the cloud, and of the thick darkness; and he added no more; and he wrote them on two tables of stone, and delivered them to me." Deut. 5:22. Therefore we must conclude that nothing that was not written on the tables of stone can form any part of the ten commandments. In other words, the law of God, or ten commandments, is limited to that which God spoke with his own voice and wrote with his own finger, and which is found, as spoken and written, in Ex. 20:3-17.

HONORING THE HOLY SPIRIT.

It is related that at the close of an evening service, conducted by Mr. Moody, in the early part of his evangelistic career, he was met by an aged Christian, who, with fatherly tenderness, said: "My dear young brother, always honor the Holy Spirit in all your work."

There is reason to think that the office and work of the Holy Spirit does not hold the place that it ought in the heart and faith of professed believers.

In honoring the Holy Spirit by the full surrender of our souls in personal faith, and humble, trustful reliance in his work and power, we shall so voice the truth that it will be made savingly efficient. We ought not to rest satisfied until we see the truth leading to repentance and faith in the Lord Jesus Christ; for then alone is witnessed on the human side a change of which regeneration is the divine side. The more we come into vital contact and sympathy with the work of the Holy Spirit, the more we shall be faithful and direct in presenting the truth, of lesson and sermon, in

ways that shall reach, by the divine blessing, the citadel of the will. Our duty is to bring ourselves and others face to face with the Holy Spirit. Let us not shrink from dwelling upon his office and power because the work wrought is mysterious. In this very fact we discover an assurance that the gospel is life eternal, and not simply a code of morality.

To be filled with the Holy Ghost! Is there any secret of power, in guiding and saving souls, to be compared with this? We need, as teachers of the word, that is made effectual by the Holy Spirit, not only to believe in the baptism of fire, but earnestly to seek for this endowment with power from on high.—*Selected.*

Our Scrap-Book.

THE GIANT IN THE COAL-BIN.

It is Thomas A. Edison, the famous electrician and inventor, who says in substance that there is a "giant in the coal-bin." Do you wonder how he knows? A few facts in Mr. Edison's past history will tell you how. He began his life in 1847, a poor boy, receiving such instruction in his earlier years as his mother could give him with several other children. At the age of twelve years he was selling pea-nuts and papers on the Grand Trunk Railroad, experimenting with chemicals and studying during all his spare moments. He used an old baggage car as laboratory, labeling all his chemicals "Poison," to prevent their being meddled with. In this same car he set in type and printed a paper.

When Mr. Edison was sixteen years old, he snatched the child of a station-master from the track before a swiftly moving train; and the child's father, in gratitude for this act of bravery, taught him telegraphy. Edison acquired great skill in his profession, and it was he who invented the system of telegraphy whereby four or six messages can be sent over the same wire. His inventions in electric science were so numerous that in 1883 he had taken out 235 patents. The United States Patent Commissioner described him as "the young man who kept the pathway to the Patent Office hot with his footsteps." Some of our young readers have heard of his phonograph, telephone, and various other 'phones; of his electric pen and electric light. He has continued to improve the details of the electric-light system, and he is hard at work, expecting the study of electricity will reveal still more marvelous things in the near future. In his experiments he is so dependent upon the use of carbon, you may understand what a writer in *Treasure-Trove* means when he says:—

"The giant is there; Mr. Thos. A. Edison says he is. But nobody can find the key that will unlock his prison door. Wise men are searching for it every day, for it would be a great blessing to have the giant let out. He would propel all our cars and boats, swiftly and silently; he would turn the wheels of all the machinery in our great factories. There would be no steam-engines to hiss, and roar, and scream; to fill the air with smoke, and gas, and cinders; to explode, and crush, and scald people.

"There would be no enormous gas bills to pay; the giant would furnish all the light needed. There would be no fires to be built in the morning, no coal scuttles for boys to lug, no ashes for girls to sweep up, the giant would furnish all the heat needed to warm our houses and cook our food. Instead of calling Bridget to put on more coal, we would simply turn on a little more electricity.

"If the giant were out, car-fares would be reduced, and so would the whole cost of living. There would be no danger of our coal mines giving out some day and our supply of fuel being cut off.

"Who will let the giant out? Perhaps the boy that is going to do it is now poring over his philosophy lesson. Study hard, boys, especially the chapter on electricity, and perhaps you will find the key that will open the giant's prison door."

THE BOY OF HOORN.

THERE are some queer places in Holland, made so by the odd ways of the people who live there. One quaint place goes by the name of Hoorn. It is situated on that narrow peninsula of North Holland which juts out into the water between the Zuyder Zee and the North Sea. Its location is given on a large map of Holland. A gentleman who has visited this place, writing in the *Christian Weekly* "for the small boys of America," says:—

"Hoorn is the quaintest, queerest, tidiest old-fashioned place in the world. The houses lean to every point of the compass. Some stand so straight that they lean backward; others seem to be trying to lean over lovingly to rest against their neighbors across the street, while almost all of them slant sideways as far as they can until they come to the next house in the block and can go no farther. The streets look like rows of children's play-houses just after they have received the first push at the end and before they have collapsed.

"Through all the streets run beautiful canals lined with great shade trees, and the boy of Hoorn is as likely to live in a canal-boat as in a house; and the clean, polished canal-boats, with their cozy, white-curtained cabins, make very attractive houses for the boy.

"To go fishing, he has simply to open his bedroom window and drop a hook and line. Nine chances out of ten, if his hook is well baited, he will pull in a fish pretty soon. If he lives in a canal-boat, he can go fishing from the roof of his house any time of day.

"His mother dresses him just as her husband is dressed, so that he looks like a little old man cut down to a boy's size. He wears baggy pants, a grown-up sort of coat, and such great, heavy, clumping wooden shoes that it would make you laugh to see him come shuffling down the street on a fast trot. How he can keep his shoes on is a wonder, for he can jump into them at one spring, and there are no ties, buttons, or elastics to bother him. A baby's shoe is seven inches long and four inches wide, so you can imagine what large shoes the boys and men must wear.

"The Hoorn boy's principal bad habit is rolled up in a cheap cigar, and he imitates his father and uncles by always puffing at it. I have seen him when he was not more than six or eight years old, holding his mother's hand and smoking with all his might. He seems to smoke as a matter of course, just as he eats his breakfast and goes to school.

"Don't imitate the boy of Hoorn in this particular, but only in his good habits. One of these is unfailing politeness. Whenever a stranger passes him on the street, he invariably touches his hat to him. If he is sitting on a seat in a public park, and a gentleman passes, he rises and salutes him. If he is whistling a merry tune, he stops the tune until he has passed his elders; and in a hundred little ways he shows his good training and aptness to learn. With the exception of his tobacco habit, one cannot help loving this boy, he is so neat and clean. His clothes are not always very nice, but they are always whole and tidy, and his face usually shines like the cheek of a rosy apple, or like his mother's kitchen door-step."

Mr. Clark said other interesting things about the city and boy of Hoorn, and altogether, what he writes, makes one feel an attachment for the place and boy. He mentions the fact that one of the ancient poets writes of the place as the "Blessed Hoorn," and he thinks it deserves the name, and that "the small boy is one of its most delightful characters."

THE MISSING SOVEREIGNS.

As the story goes, the electric telegraph, on the start, proved itself an invaluable institution with a certain business house in Great Britain. It is related that when the "invention was new and a mystery to the masses, there came trouble one Saturday night in the Bank of England. The business of the day had been closed, and the balance was not right. There was a deficit of just £100. This is a fearful thing in that establishment. Had it been a hundred thousand or a million, there could not have been greater commotion. It was not the money, but the error that must be found. For some of those clerks there could be no sleep until the loop should be taken up.

"All that night, and all day Sunday, a squad of clerks were busy. That £100 was surely gone from the vaults, but no penmark told where.

"Meantime, a young clerk, on Sunday evening, wending his way homeward from one of the gardens, fell to thinking of his busy companions at the bank; and suddenly a suspicion of the truth flashed across his mind. On the following morning, he hurried to his post of duty, and told the chief what he suspected. The mistake might have occurred in packing some boxes of specie for the West Indies, which had been sent to Southampton for shipment.

"The chief acted upon the suggestion. Here was an opportunity to test the powers of the telegraph. Lightning against steam, and steam with eight-and-forty hours the start. Very soon, the telegraph asked a man in Southampton, 'Has the ship "Mercator" sailed?' The answer came back, 'Just weighing anchor.' 'Stop her, in the Queen's name!' flashed back the lightning. 'She is stopped,' was returned. 'Have on deck certain boxes [marks given], and weigh them carefully, and let me know the result,' telegraphed the chief.

"The thing was done; and one box was found to be somewhere about one pound and ten ounces avoirdupois heavier than its mates,—just the weight of a hundred golden sovereigns!

"All right! Let the ship go!"

"And the West India House was debited with the £100."

MYSTERIOUS PERSIAN WELLS.

IN the neighborhood of Shiraz, on a hill an hour's ride to the northeast, the traveler comes upon some very, very ancient wells. Near the top of this very steep hill, with no trace of masonry to mark the site of fort or palace, there yawns an opening about eight yards long by six wide, which is the mouth of a well going straight down into the bowels of the mountain. The shaft is cut in the rock, the sides are as perpendicular as the plumb line could make them, and the depth, as ascertained by the time of a falling stone, must be something under four hundred feet, the bottom at present being dry. Within a distance of fifty yards, on the same hill, are two other smaller wells; and it is said that there is an underground communication among the three. This theory finds support in the fact that when a pistol is fired at the mouth of one of these wells, to disturb the pigeons that flock thither at noon, the noise of their wings, at first very loud, gets gradually fainter, as though the birds were escaping through some lateral galleries. They certainly betake themselves in some manner away from the perpendicular shaft without coming out at the upper mouth, though where they go to does not appear.

The labor expended on the boring of these wells must have been enormous; and it is a puzzle whether they were indeed wells, or intended as passages for the sudden exit of troops from some fortress built on the hill to hold the plain in awe! In the latter case, some sort of spiral staircase would necessarily have been attached to the walls of the shaft, of which at the present day no trace remains. No traveler has yet visited Shiraz sufficiently enterprising to go down the four hundred feet of perpendicular side with rope or ladder. Curious relics of bygone times might certainly be found at the bottom, but without a proper windlass and better ropes than those now made in Persia, the risk of a broken neck would cool the ardor of the most venturesome antiquary; and so, up to the present, the pigeons alone enjoy the sight of the secret treasures which possibly lie at the bottom of these mysterious and most astounding shafts.

FLOWERS AND PERFUMES.

THE chief places of their growth are in the south of France and Piedmont, namely, Montpellier, Grasse, Nîmes, Cannes, and Nice. These last two especially are the paradise of violets, and furnish a yearly product of about 13,000 pounds of violet blossoms. Nice produces a harvest of 100,000 pounds of orange blossoms, and Cannes as much again and of a finer color; 500 pounds of orange blossoms yield about two pounds of pure Neroli oil. At Cannes the acacia thrives well and produces yearly about 9,000 pounds of acacia blossoms. One great perfumery distillery at Cannes uses yearly 140,000 pounds of rose leaves, 32,000 pounds of jasmine blossoms, 20,000 pounds of violets, and 8,000 pounds of tuberose, together with a great many other herbs. The extraction of the ethereal oils, the small quantities of which are mixed with such large quantities of other vegetable juices that it requires about 600 pounds of rose leaves to win one ounce of otto of roses, demands a very careful treatment.

The Sabbath - School.

SECOND SABBATH IN MAY.

IMPORTANT BIBLE SUBJECTS.

LESSON 3.—PERFECTION OF THE LAW.

[NOTE TO THE STUDENT.—Do not consider the lesson learned until you can give at least the substance of every text, with the correct reference for each. The references in black letters indicate those texts that should be committed to memory. A little diligent application each day will enable you to learn them, although this need not be considered a test of scholarship.]

1. UNDER what circumstances were the ten commandments spoken?
2. What steps were taken for their preservation?
3. Where do we find them recorded?
4. In what two precepts are these ten commandments summed up? *Matt. 22:35-40.*
5. In making this statement, did Christ utter a new truth? *Lev. 19:18; Deut. 6:5. He quoted from the law. See Matt. 22:36.*
6. Can there be any duty outside of what we owe to God and our fellow-creatures?
7. Then what may be said of the ten commandments? *Ecol. 12:13.*
8. What does David say of the commandments? *Ps. 119:172.*
9. What does the Lord, through one of his prophets, say of his own righteousness? *Isa. 51:6.*
10. Who are they who know (or have) this righteousness? *Isa. 51:7.*
11. Then what is the law of God?—*The righteousness of God.*
12. Since the law of God is his righteousness, what may truly be said of it? *Ps. 19:7.*
13. Quote other statements from the Psalms concerning the nature of the law. *Ps. 111:7; 119:86, 138, 142, 151.*
14. What did Paul say of it? *Rom. 7:12.*
15. Since the commandments are an expression of the righteousness of God, is it possible to speak of them in too exalted terms?

NOTE.

SINCE the law of God is "the righteousness of God," or the expression of God's character, it is evident that every epithet which is applied to the character of God, may with propriety also be applied to the law.

TO PRIMARY TEACHERS.

If you are a primary-class teacher, do not expect too much of yourself. Perhaps you doubt your ability, but if your work has come to you "opportunity-end foremost," to quote Dr. Vincent, take that as a hint that God meant to fit you for it by putting you in it. Do not be discouraged by the repeated assertions that yours is the most important and responsible class and work in all the school, and other like statements on the requisite qualifications. They are true, but they are overwhelming, and morbidly dwell on, are thoroughly disheartening. That you are in the position does not prove that you think yourself efficient, proficient, or sufficient for these things. Do not forget that you sit at the feet of the Great Teacher, and may learn of him.

Do not expect too little of yourself. Exact the uttermost portion of time and labor needed for your high calling.

Do not expect too much of your class in the way of order, attainments, interest, or improvement. Remember that they are little children. Do not undertake to teach too much.

On the other hand, do not expect or exact too little of your class. Do not imagine, because they are such morsels of humanity, that there is no room in their hearts for solemn and earnest lessons. We often underrate the capacities of children. The mothers can tell you what the little ones bring home, and how they imitate your voice and manner in the telling of it, too.

Do not forget that you are giving your scholars a part of your very self, while, with every faculty alert, your chief conscious thought may be to keep them decently in order, and give them some definite idea of the lesson. Therefore do not fail to be what you would wish them to see.

Do not fail to have your lesson well in hand. Distinct, definite preparation and a clear conception of the points to be taught, greatly help in any teaching; but a primary teacher, of all others, is liable to be thrown off her guard, or disconcerted, by unforeseen incidents, inopportune visitors, and things of such sort, and needs to be certain of her lesson. It is true that happy thoughts and illustrations often come at the moment, like inspirations; but they are more likely to spring lightly from a well-poised lesson, than to be sent to supplement imperfect preparation.

Do not be afraid to use the blackboard, or slate, even if you cannot draw a straight line or a respectable crooked one. You can hold attention by very crude dots and marks. You will not venture very elaborate work, unless you have eyes in the back of your head, to serve you while thus engaged. Do not be disconcerted or disturbed if when making a square, for instance, to represent a king's palace, a

boy, with cheerful confidence, volunteers the information that he "can make a much better one than that." You might let him try. It is sometimes well to let the older children make the marks and dots, but such experiments must be kept within bounds.

Training as well as teaching is a part of primary work. Little children should be trained in Christian work suited to them,—in bringing in new scholars, and in systematic, intelligent giving. (Oh, for a dozen lines of emphasis under this last!) Standing, as you do, near the beginning of young lives, your opportunities are priceless, and you are not likely to overvalue them. When the characters are formed, the touch and trace of your hand may not be distinctly evident; but if it is there, in living, lasting influence, can you be thankful enough for your "recompense of reward"?

We have none of us reached even our own standards. At best, we stumble along the path, though we have discerned the warnings and the way-marks. We may have learned what we should or should not do, but how to perform, or avoid, we "find not," to our own satisfaction. Nevertheless, with love and longing, in hope and trust, by "the good hand of our God upon us," we would "press forward" evermore.—*Julia H. Johnston.*

Our Scrap-Book.

MOUNTAIN-FARMING IN NORWAY.

IN our youthful days we recollect hearing it said that the hills on some of the New England farms were so steep that the grain was necessarily shot into the soil. Of course it was not expected the statement would be taken literally. It was only meant that farming among the New England hills is attended with many difficulties.

A writer in the *St. Nicholas* says of mountain farming in Norway, that on account of the many inlets from the sea, which they call fjords, and the many high mountains, every bit of grass is cared for. Peasants build little farm-houses way up the sides of the mountains two or three thousand feet above the sea, and there live the year round, although it is so cold and snowy in the winter, just to have a little patch of grass a small part of the year. He says the land is so steep that the cattle have to be tethered while they feed, and the children fastened by ropes to stakes while they play, to prevent their falling down hill.

In the *Popular Science Monthly* for April, the editor gives some further particulars of Norway-mountain farming which may be of interest to our young farmer boys. He writes:—

"Farming in the mountain-regions of Norway is carried on under difficulties which would discourage an agriculturist bred on our prairies. The steep hills and rocks leave no broad spaces for fields; and the mountaineer, to winter his stock, has to make hay out of the grass that grows on the narrow ledges and in the crevices. If he manages to get a considerable crop off a hill, he will store it in sheds till winter, when he will send it down into the valley in bundles along a strong wire which he has stretched from the foot of the mountain to the top. To dry the hay, poles are planted near the patches, between which ropes or long sticks are laid until a sort of six-barred railing is formed. On these bars the hay is laid, and dried in a most effective manner. Corn is tied in small bundles and fixed on poles placed at intervals in the field. The potato crop is farmed on a like small scale. The seeds are dropped here and there wherever there is a possibility of their taking root. At one place potatoes were noticed growing on a boulder, where a soil about eighteen inches deep had gathered or been placed, the whole field being a triangle the sides of which were each about twelve feet in length. Small patches from twenty feet to as many yards square are common; while not unfrequently the corn-fields are but a name, for they meander like a stream in all directions among the huge boulders and bare, rocky hillocks which compose so great a part of the surface of a farm land. The lands are usually very light. Manuring is not resorted to as a regular part of the routine; but the fields are left from time to time for three or four years, by rotation in grass. In the summer months, female servants, or the daughters of the farmer, tend the cattle high up in the field, living in *saters* or cabins, where they prepare cheese and butter."

SAND-SPOUTS ON THE DESERT.

THE wilderness and the desert are dismal places when the elements are peaceful; but when tropical storms pass over them, they must become terrifying abodes either for man or beast. Travelers portray such storms as terribly appalling, reminding one of the great day of God's wrath, when the "foundations of the earth shall be shaken." One who has journeyed in Africa describes in the *Home Journal*, a sublime scene he witnessed in going through Nubia to Darfour. He writes:—

"I had gained an isolated hillock some two hundred feet above the level of the surrounding desert. Away to the west, about two miles distant, I descried seven lofty pillars of sand moving swiftly over the undulating plain. The center one of these was vertical, and those surrounding it, at a distance of two hundred or three hundred yards, leaned slightly toward it. A smaller eighth column, about half a mile behind the others, was inclined toward them at an angle of forty-five degrees, and was fast overtaking them. The sand at the base of the columns was lashed by the furious whirlwind into a surging sea; trees of the hardest wood were torn up with their roots, and hurled hundreds of yards away and high up into the air; even the grass that grew in the path of that terrible storm was shorn clean away from its roots. The summits of the seven columns at length joined; and then burst forth from their united tops a yellow, gigantic cloud of sand of such magnitude and density as to darken as in a total eclipse the face of the bright afternoon sun. The sand-spout, called by the natives, 'zobahah,' shortly after subsided, but the cloud of sand and grass, which had been raised high in the heavens, continued to darken the setting sun

for more than another hour. The smaller column behind traveled, increasing until it reached the site of the break-up of the other, and then added its mite to the universal destruction and confusion.

"With my sextant, as I stood in security, I measured the height of the center column of sand; it was 850 feet. The others round it rose, during the time I observed them (about a quarter of an hour), from 600 feet to a height equal to or greater than that of the center column. When the junction of them all took place, the sudden eruption of sand and leaves and grass reached to a total height of over three thousand feet.

"Storm sand-spouts are rarely so severe in any part of the desert as that which I have described; isolated 'zobahs,' more or less clearly defined, reaching to the height of 1,000 feet, are, however, very common, and woe betide the tent that happens to stand in their way. Ten yards from the column the air may be perfectly calm; but within the small circumscribing circle there rages such a tempest as will carry a tent, however firmly fixed in the ground, into the regions of the upper air as easily as an ordinary gust of wind will blow away a piece of paper. An Arab will always know whether one of these approaching 'zobahs' is likely to come upon him, and will take down his tent or temporary house to meet its convenience. Its usual movement is in the arc of a wide circle, and the direction of the center of the circle is almost invariably from south to north."

TOILERS IN THE STREAMS.

If any order of creatures is born to a life of ease, and is exempt from the performance of a daily task, it might be thought that the fishes in the water form that order. They need no shelter from the rain or protection from the wind. They live under a transparent roof, that makes their home more splendid than a crystal palace. Their board is always spread at just that level that they may recline at their meals with all the luxuriousness of Greek and Roman gentility. The same restful couch upon which they take their meals serves equally well for repose. No beings occupy a home in which more comforts have been secured, and yet, even these are intent upon making improvements.

A Scotch naturalist writes pleasantly of some building operations which he saw going on at the bottom of a ditch. One summer day he was amused by watching the singular proceedings of two lampreys in a small ditch of clear, running water near his house.

They were about six inches in length, and as large round as a pencil. The two little creatures were most busily and anxiously employed in making little triangular heaps of stones, using for the purpose irregularly shaped bits of gravel the size of a large pea.

When they wished to move a larger stone, they helped each other in endeavoring to roll it into the desired position. Occasionally they both left off their labors, and appeared to rest for a short time, and then they returned to the work with fresh vigor.

The object of their building this observer did not venture to guess, but he had a good opportunity of watching them, as the water was quite clear and shallow, and they were so intent upon what they were at, that they took no notice whatever of him.

He had intended to examine the little heaps of stones which they had made, but going from home the next day put it out of his recollection, and he lost the opportunity. It seems, however, so singular a maneuver on the part of fish to build up regular little pyramids of gravel, bringing some of the stones from the distance of two feet against the current, and rolling them to the place with evident difficulty, that the lampreys must have some good reason which leads them to take the trouble.—*Youth's Companion.*

AN ELECTRICAL HOUSE.

ACCORDING to an exchange, Dr. Wm. Hammer, of New York, an associate of Mr. Edison, lives in a house that is so full of electricity, batteries, Leydenjars, etc., conducted by a system of wires, that it cuts up all sorts of antics and practical jokes upon new comers, and completely eclipses the marvelous magical performances of the Arabian Nights. Here is a partial description of this novelty in electrical architecture:—

"You enter the gate, and the house appears dark; but as your foot touches the lower step, three electric lights blaze out, and the number of the house appears in bright relief. The next step sets a bell to jingling, and the third throws open the door and lights the gas in the hall, by electricity transmitted by the pressure of the foot. Inside the hall there is an odd-looking foot-rest attached to the hat-rack, and by pressing a button, a pair of brushes comes out and shines your shoes. Upstairs, where you remove your wraps, there is a bedroom that would be worth a fortune to a lazy man. By touching your head to the pillow, the gas, fifteen feet away, is extinguished, and by pressing a knob at the foot of the bed it is lighted again. Outside the door a clock-work attachment sounds a drum at the proper time, and if the occupant does not get up after fifteen minutes' grace, the bed rises on its hind legs, and dumps the sleeper on the floor."—*Good Health.*

TOLLING BELLS AT MOUNT VERNON.

It is the custom for all boats to toll their bells on passing the tomb of Washington; and an exchange says the origin of the custom was given at a meeting of the Washington Literary Society, by Dr. Toner, as follows:—

"This token of regard, it is said, originated on a French merchant vessel which had been to Alexandria for a cargo. In going down the river, after Gen. Washington's death, but before his interment, it placed its colors at half-mast, and tolled the bell continuously while passing the house of mourning. This special testimony of respect impressed every person as becoming and appropriate, and it was at once taken up and practiced by all river crafts. Ever since then, the bell is tolled on vessels of every character and nation which pass the tomb of Washington. It may then be claimed to have grown into a custom of impressive, reverential respect, observed by all vessels sailing up and down the Potomac River."

THE largest room in the world under one roof and unbroken by pillars is at St. Petersburg. It is six hundred and twenty feet long by one hundred and fifty in breadth. By daylight it is used for military displays, and a battalion can completely maneuver in it. Twenty thousand wax tapers are required to light it. The roof of this structure is a single arch of iron, and it exhibits remarkable engineering skill in the architect.—*Christian Advocate.*

The Sabbath-School.

SECOND SABBATH IN MAY.

IMPORTANT BIBLE SUBJECTS.

LESSON 4.—BREADTH OF THE LAW.

[NOTE TO THE STUDENT.—Do not consider the lesson learned until you can give at least the substance of every text, with the correct reference for each. The references in black letters indicate those texts that should be committed to memory. A little diligent application each day will enable you to learn them, although this need not be considered a test of scholarship.]

1. WHAT can you say of the perfection of the ten commandments?
2. Of whose character are they a likeness? Give proof.
3. How much of our duty is comprised in the ten commandments?
4. If we do the commandments, what sort of characters will we have? **Deut. 6:25.**
5. Of whose righteousness will we be partakers? **1 John 3:7**; compare **Isa. 51:6, 7.**
6. If to do the commandments is righteousness, what must it be to fail to do them?
7. And what is all unrighteousness? **1 John 5:17.**
8. Then what is sin? **1 John 3:4.**
9. How may we know that any action is sinful? **Rom. 7:7.**
10. To what law does Paul here refer as pointing out sin?—*To the law which contains the commandment "Thou shalt not covet."*
11. Then of what law is it that John speaks when he says that "Sin is the transgression of the law"?—*Of the law of ten commandments.*
12. Can there be any sin committed that is not covered by the law? **Rom. 4:15; 5:13.**
13. What did David say of the law? **Psa. 119:96.**
14. How broad is it? **Heb. 4:12.**
15. How did Jesus illustrate this in the case of the sixth commandment? **Matt. 5:21, 22.**
16. Do the commandments forbid evil thoughts and desires as well as open sins? **Matt. 5:27, 28.**
17. What is the whole duty of man? **Ecc. 12:13.**
18. What reason is given why we should do our duty by keeping the commandments? **Verse 14.**
19. What does this statement indicate? (See note.)

NOTE.

"FEAR God, and keep his commandments, for this is the whole duty of man. For God will bring every work into judgment, with every secret thing, whether it be good, or whether it be evil." **Ecc. 12:13, 14.** Keeping the commandments is declared to be the whole duty of man. The reason given why we should thus do our whole duty, is that "God will bring every work into judgment, with every secret thing." This statement, coming in the connection that it does, can indicate nothing else than that the commandments of God cover every work, with every secret thing. Whosoever therefore keeps the commandments will be perfect, even in his secret thoughts.

Our Scrap-Book.

BUILDERS.

WE shape ourselves the joy or fear
Of which the coming life is made,
And fill our future's atmosphere
With sunshine or with shade.

The tissue of the life to be
We weave with colors all our own,
And in the field of destiny
We reap as we have sown.

HOW THE INDIANS WRITE.

IN nearly every part of the earth are persons who do not know how to write. Some are needlessly ignorant, but there is a large class whose ancestors or kinsfolk in any line have never been instructed in a written language. They may have signs or marks by which they convey their ideas to others; but they have no system of writing, no alphabet like yours, by which they can communicate thought. The wild savages in our own country, with the exception of some tribes that have had the advantages of schools, are specimens of this class. When they wish to send a message to another, they express what they have to say by pictures, their picture-writing being something like the rebuses you sometimes puzzle over in newspapers and magazines. Henry Eckford, in the *St. Nicholas*, gives a pleasing illustration of their picture-writing, which we give you in a condensed form. It is something as follows:—

"Supposing a party from the great clan, or tribe, known as Turtles, have made a raid on a village of huts and wigwams owned by enemies belonging to the wide-spread clan called the Bear clan. After robbing their neighbors of their cattle and plundering and burning their homes, they wish to let other Indians know what fine robbers they are; so the Turtle chief chooses a piece of smooth, cream-colored birch bark, chews up a little tobacco to serve as ink, and with a twig of soft wood for a pen, draws upon the bark,—first, a turtle, a very big turtle, because he thinks he and his clan are very great personages; then he

draws as many curving lines, to represent bows, as there are Indians in his party, and perhaps as many Indians with top-knots; his lines bend forward, to show in what direction the trail went. Following these, a rising sun stands for day-break, and three horizontal lines under it mean that three days went by in going to the Bears. Next he makes as many funny little pyramids as there were Bear wigwams, and draws them upside down, to show that they were destroyed. After that he draws a wee, wee bear, very small, in order to show his contempt for the Bears. Finally, he draws with the greatest care as many oxen and ponies as he has captured, because he is chiefly proud of this part of the exploit, and wishes all to know what a successful robber he is.

"If the Bear braves were away when he surprised the camp, he does not care to tell that. This may be understood, however, by the absence of any sign for scalps. If there is resistance, and men are slain on either side, the exact number of dead are noted by drawing just as many human figures without heads.

"To call the attention of every one who passes through the woods, the war chief next fixes the piece of bark to the top of a long pole, and plants it on the path so that the most careless person cannot fail to see it."

Our method of sending messages on paper by means of a written alphabet, is very mysterious to a real wild Indian. He calls it a "talking leaf," and thinks the writer and the receiver of the message are both wizards.

OLD EGYPTIAN SKILL.

THE ancient Egyptians excelled in nice mechanical work, and it might puzzle some of our masons and stoneworkers to equal them at the present day. Mr. Kendrick, in speaking of the casing of the great pyramids, says: "The joints are scarcely perceptible, and not wider than the thickness of silver paper, and the cement so tenacious that fragments of the casing stones still remain in their original position, notwithstanding the lapse of so many centuries and the violence by which they were detached. All the fine work of the interior passages, where granite is not expressly mentioned, is of the same stone, and finished with the same beautiful exactness. But the skill in quarrying was displayed more in the extracting of the huge blocks out of which obelisks and colossal statues were hewn. Obelisks ninety and statues forty feet high, each fashioned out of one stone, were not uncommon things; and the blocks selected for these monuments were not chance splinters from barbarous efforts of splitting and smashing, but clean slices separated *secundum artem* from the native rock, after being selected and accurately defined. And how was this done—by driving in huge iron wedges? No, indeed; that would probably have split the stone. By infinite labor, then, in chiseling and sawing? The old Egyptians knew a trick somewhat cleverer than that; they cut a small groove along the whole length of, say, one hundred feet, and in this inserted a number of dry wooden wedges; they then poured water into the groove, and the wedges expanding simultaneously and with great force, broke away the large fragments as neatly as a strip of glass is taken off by a diamond."—*Classmate.*

WAMPUM.

IT may be the readers of the INSTRUCTOR already know this is the name which was given to the shell beads the North American Indians used as money; but we feel certain you will like to know something of its manufacture and use. The Indians made it themselves, by hand, from the inner part of certain shells,—the conch, or periwinkle, and the hard-shell clam. What they formed from the conch-shell was white, while that made from the dark portion of the inside of the clam-shell was purple, or nearly black. "Black wampum" was so scarce it was worth twice as much as the white.

Besides being of two colors, they made the beads in two forms. The kind earliest in use varied in size from that of an English sixpence to an English shilling, and was about one-eighth of an inch in thickness; while that made later was in size and shape more like a clay pipe-stem, and in length from one-half to one-third of an inch.

It was a slow, tedious process to make it, and this gave it considerable value with them. They first broke from the shell the part which was suitable for a bead, and rubbed it on a stone until it was of the right size and nicely polished, when they cut it into the right lengths, pierced holes in the center of all, and strung them on some sort of a string.

You would feel strange, no doubt, to be passing beads for money; but the boys and girls did that in the early history of this country. In the 17th century the laws of the white colonists made wampum a legal tender for certain sums, and it was rated at four white beads or two blue ones for a penny. At one time for nearly half a century, "silver money was so scarce in New York that wampum was almost the only currency in use."

Of its name, a writer in a late magazine says: "A string of white beads, the most common currency, was called by the Indians, *wampum-peak*, or 'white strung-beads,' wampum meaning white, and *peage* or *peake*, shell-beads at least when strung. The settlers caught the first part of the compound word, and hence all money beads became known among them as 'wampum.'"

This same writer says, "By their custom, handed down from time immemorial, it was necessary that all great acts of state policy should be accompanied by the exhibition of wampum in some form." It is said by another, "Wampum was used in all treaties, on all public occasions, a string or belt being given to bind each article of a treaty, and a treaty belt being delivered as a solemn ratification."

"The belts were composed of short strings of wampum containing from six to twenty-four beads each, laid side by side, and knotted closely together. The length of the string made the width of the belt, which varied from two to nine or ten inches, while its length varied from two to eight feet. The wider and longer the belt, the greater, of course, was its value, and the higher its significance as a pledge or memorial. Each belt usually had its special device, which was wrought sometimes in white beads on a dark ground, sometimes in purple beads on a white ground, according to a recognized system, so as to form the record of an event, that could be read.

"The Indians who lived along the sea-coast were the principal manufacturers of wampum, and they drove a brisk trade with the tribes of the interior. Long Island in particular was a noted seat of this industry. It was the Potosi or California of the Northern Indians, and bore among them the name of Seawanhake, or 'Land of Wampum.'"

BOILING WATER BY SUNLIGHT.

PROF. S. P. LANGLEY, a distinguished American astronomer, has been carrying on some experiments at Mount Whitney, South California, with a view to determine the amount of heat the sun sends to the earth. Into these we need not enter here, but it was incidentally found that, on the summit of Mount Whitney, the temperature in a blackened copper vessel, covered by two sheets of ordinary window-glass, rose above the boiling-point. Thus, in such a vessel, water could be boiled among the eternal snow of Mount Whitney by the direct solar rays.—*Sel.*

SPIDER-SHOWERS.

GILBERT WHITE records in his "History of Selborne," that in 1741 he saw a shower of spiders, which continued for nearly a whole day. Mr. Darwin saw one in 1833, while at sea, and each spider was supported by a tiny parachute, composed of a few threads of almost invisible gossamer. A writer in *Chamber's Journal* describes as follows a spider-shower he saw in September, 1875:—

"On the morning of the shower there had been some electrical disturbance. There had been one loud peal of thunder, but no rain.

"About ten A. M., I noticed small spiders running over my coat-sleeves, and had to brush off several trails of gossamer-web.

"Looking round, I found that brick-walls, houses, branches of trees, etc., had these webs dangling from them, and that other gossamer-webs were continually falling from above, and adding to the accumulation.

"By midday, a long fence was festooned from point to point of its triangular rail-tops with a ribbon-like ladder of gossamer; and this was growing broader and broader as the tiny creatures kept running along this ladder, each increasing the breadth by adding its own contribution of another silken thread.

"All along this ladder the little strangers were running in an excited and hurried manner, as if they had lost their way, and had got into a strange country.

"Some, in traveling over their improvised road, made mistakes, and got into bordering webs of the garden spiders, where they were speedily devoured.

"About one P. M., the clouds cleared off, the sun shone out, and I noticed that some of the spiders had begun to re-ascend into the atmosphere.

"Fixing my eyes upon one of them, I observed that as it left the gossamer pathway, it selected a clean spot on the iron railing, and gathering its limbs closely together, it projected from its spinnerets several threads which expanded outwards, and stretched upwards from nine to twelve inches.

"Then this parachute seemed to show a buoyant tendency, and suddenly the tiny creature left hold of the iron rail, or was lifted off it, and quickly 'vanished into thin air.'

"Possibly the real home of gossamer spiders may be in the blue ether, where, in the wonderful economy of nature, they may have their appointed work to do. Or, it may be that these Lilliputian roamers through space, like the migratory birds, have their appointed periods for going in one direction and returning in another.

"Who knows?—He only who made them and us, and whose ordained ministers are, humanly speaking, infinite in their number and variety."—*Selected.*

LOCAL ENGLISH.

A RECENT writer upon English manners and customs calls attention to some of the different names of employments and callings in England and in this country. He mentions among these that what we call a lumber-dealer is there known as a timber-merchant. It may be remarked that the word dealer is in frequent use only in America.

The other word, timber, suggests a great variety of usage. Timber, in New England, is applied to trees large enough to cut logs for the mill, to the logs entire, and to the large single sticks into which they are hewn, or sawn.

When the logs are cut into boards, planks, joists, and so on, they form lumber. In the West, timber is generally standing trees, and it includes all trees, large and small, without reference to their fitness for the mill.

The cutting and hauling this timber is lumbering there; but in a large part of New England it is logging. What we call joist is known elsewhere as scantling, and what we call boards or planks, the English call deals.

In this country a person who splits out shingles is called a shingle-weaver. In England shingles are not made in this way; but lath are regularly riven, and a maker of them is called a lath-render.—*Exchange.*

THE PILOT KNOB.

A CORRESPONDENT writes to the *Star*, of Washington, that in North Carolina there is a mountain formation very closely resembling the Sphinx. It is called the "Pilot Knob," and is in Surrey County, in the north-western part of the State, just east of the Blue Ridge, its position, prone on the Piedmont plain like a gigantic lion, its body at right angles to the precipitous ridge, and with head reared aloft, as if in the act of rising. The head is of solid rock, several hundred feet in height. The shoulders and breast are finely proportioned, and at the distance of a few miles it looks like a thing of life and intelligence. It rises about fifteen hundred feet above the plain. It is seen at the distance of fifty miles, but as yet no railroad approaches it nearer than twenty miles.

A BIG BOOK.

IN the library of the late Dr Williams, at Redcross-street, London, there is a curious manuscript, containing the whole book of Psalms, and all the New Testament, in *fifteen volumes folio*. The whole is written in characters an inch long, with a white composition, on black paper, manufactured on purpose. This perfectly unique copy was written in 1745, at the cost of Mr. Harris, a tradesman of London, whose sight having decayed with age, so as to prevent his reading the Scriptures, though printed on the largest type, incurred the expense of this transcription, that he might enjoy those sources of comfort which are "more to be desired than gold—yea, than much fine gold."

The Sabbath-School.

FOURTH SABBATH IN MAY.

IMPORTANT BIBLE SUBJECTS.

LESSON 5.—EXTENT OF THE LAW'S JURISDICTION.

[NOTE TO THE STUDENT.—Do not consider the lesson learned until you can give at least the substance of every text, with the correct reference for each. The references in black letters indicate those texts that should be committed to memory. A little diligent application each day will enable you to learn them, although this need not be considered a test of scholarship.]

1. WHAT is sin? 1 John 3:4.
2. Is everything that is wrong a violation of the law? 1 John 5:17.
3. Is sin ever imputed where there is no law? Rom. 4:15.
4. Then when we find sin imputed to any people, of what may we be sure?
5. What does the Bible say of Cain? Gen. 4:7, 8; 1 John 3:12.
6. What is said of the men of Sodom? Gen. 13:13.
7. Then, according to Rom. 4:15, what must we conclude concerning Cain and the men of Sodom?
8. Why would not God allow Abraham and his family to occupy the land of Canaan as soon as the promise was made? Gen. 15:13, 16.
9. What was the particular sin of the Amorites? 1 Kings 21:26.
10. What law forbids idolatry?
11. What other positive proof have we that the people in the time of Abraham had the law? Gen. 26:5.
12. By whom did sin enter into the world? Rom. 5:12.
13. Then what did Adam violate?
14. What particular period does the apostle specify, during which death reigned? Rom. 5:14.
15. What alone causes death? Rom. 5:12; James 1:15.
16. And what is necessary in order that sin may be imputed? Rom. 5:13.
17. Then what besides sin and death must also have existed from Adam to Moses?
18. What does Paul say of the condition of both Jews and Gentiles? Rom. 3:9.
19. If one is charged with sin, of what is he certainly in possession? Rom. 4:15; 5:13.
20. To whom alone can a law speak? Rom. 3:19.
21. As a consequence of what the law says, how do all the world stand? Ib.
22. Then who are under obligation to keep the law?—The whole world.
23. If the law existed from the beginning, why was it necessary to give the law from Sinai? Rom. 5:20.

NOTES.

SINCE "sin is the transgression of the law," "and sin is not imputed when there is no law," it follows that the fact that sin is imputed to any people is evidence that they had the law and were amenable to it. Therefore since sin is imputed to the Amorites, the Sodomites, Cain, Adam, etc., all those people knew, and were answerable to, the law of God.

"The law entered that the offense might abound." Rom. 5:20. An offense is a violation of law, a transgression, a sin. Therefore the text means, the law entered that the sin might abound. Then there was sin before the time spoken of when the law "entered." But as there can be no sin without law, it follows that the law existed before the time when "the law entered," which was at Sinai. The "entering" of the law was the formal giving of it from Sinai. Before that time, people knew the law only as portions of it remained written in their hearts (Rom. 2:15), or as they were taught by the servants of God, like Enoch, Noah, and Abraham, who had direct communication with Heaven. But after the giving of the law from Sinai, each person could at all times carefully examine the whole law for himself, and consequently sins which before might have seemed trivial, or might have passed unnoticed, were made to stand out in their true character. Thus the offense was made to "abound." As Paul elsewhere says, sin, by the commandment, became "exceeding sinful." Rom. 7:13.

Written for the INSTRUCTOR.

THE ANGEL IN THE BLOCK.

NEARLY four hundred years ago lived the great Italian painter and sculptor, Michael Angelo. He was an artist of rare power. Many of the statues and paintings in the great Vatican palace at Rome are the creations of his genius. It is said that on a certain occasion he was seen gazing into a pool of dirty water in which lay a mass of rough, unsightly marble. When asked why he looked so earnestly on a great unpolished stone, he replied, "I see an angel in the block." He had the marble conveyed to his workshop, where, by patient toil, the shapeless and hard rock was wrought out into the image of a beautiful angel, radiant with the glory of heaven.

Here is a lesson for us, dear teachers. Have we not many blocks, hard, shapeless, and unpromising, that try our skill and test our patience and dull the tools of our

best endeavor? In this unhewn material from the quarry of nature we may bring out a beautiful and well-balanced character.

Who among the moral artists in the workshop of the Sabbath-school will bring the angel out? It will take patient work and more than mortal skill. Let us hold the tools we use in the fear of God. Let us look well that we shape it after the Divine model. Will it stand when the Master Artist examines it? Let us carefully and earnestly study the best methods of work.

N. J. BOWERS.

Our Scrap-Book.

GOOD DEEDS.

WHO has good deeds brought well to end,
For him the gloomy forests shine.
The whole world is to him a friend,
And all the earth a diamond mine.
—Oriental, translated by W. R. Alger.

HOW SOME INDIAN TRIBES MEMORIZE.

Do you ever tie a string on your finger to remind you of things you wish to attend to afterward? or do you have some other way of jogging the memory? The unlettered Indian, who writes by pictures, has ways for bringing to mind things which he wishes to recall in the future; and a writer in the *St. Nicholas* tells of the Ynea, or Inca Indians of Peru, South America, that they used knots tied in woolen strings as memorizers. He says further:—

"The only books in the royal libraries and treasuries of the Yncas were flimsy pieces of worsted-work! The woolen strings, made from the fleeces of the llamas and alpacas, were dyed with different colors, and the knots were of several different kinds, so that the system was not easy to use, and special chiefs or historians were employed to make and read them. It was their duty to commit to memory the facts and figures to which the knots and colors referred. Men were chosen who had great memories naturally, and constant practice made them marvels of exactness. A simple glance at such strings would enable them to rattle off long accounts of taxes paid and taxes due, of tribute from conquered tribes given and still to come, of embassies from other nations, and of wars made and treaties concluded. Although used chiefly in affairs of taxes, we can hardly doubt that now and then great pieces of news, like an earthquake, or an invasion of pirates, or the death of a Ynea, etc., would be tied into these curious memorials. They were called *quippus*, and it is said they are still in use among tribes of the Andes Mountains.

"The North American Indian's system was similar to the *quippu*, only they used wampum, or strings of colored shells and beads to jog the memories of their chiefs. And some wampum belts are used to this day by Indians who speak, read, and write English as well as you. Once a year they meet in a grand council as their forefathers and they have always done. The belts are brought solemnly out, and the speeches and hymns which they recall are recited exactly as they have been for hundreds of years.

"Only last year, when the bones of the great orator Red Jacket were buried under a monument in Buffalo, N. Y., the chiefs who chanted songs over his new resting place, used belts of wampum to remind them what verses should be sung.

"The beads of wampum remind them in what order to place the words, and recite the sentences they already know by heart. By this means the great Indian Confederation of New York State, called the Iroquois, or Six Nations, has kept its records of the founding of the league by Hiawatha and other great chiefs, word for word, during many centuries. As the great chief, to whose family belongs the right to pronounce the words, utters the solemn sentences, each chief present listens carefully; and should he vary the words or the order of the words, each would be able to correct him. They are so exact that certain words which used to be employed in their language, but are no longer in use, still keep their place in these old hymns. Often chiefs do not know their meaning, but pronounce them they must."

MONSTER TURTLES.

In the Pacific Ocean, directly under the equator, and several hundred miles west of South America, is a group of about fifteen islands which were discovered by the Spaniards nearly three hundred years ago, and named Galapago, the name in Spanish meaning tortoise, or turtle. It is said that there are five different kinds of turtles on the several islands, and there are so many of them that their tracks form a complete network over some of the islands. These, in size, do not much resemble the turtles the readers of the *INSTRUCTOR* have seen; for some of them measure ten and twelve feet in length, from head to tail, with a shell six feet long, and weigh six or seven hundred pounds.

India was once the home of the great land-turtle, a specimen of the remains of one now being in the British Museum. It "represents the shell of a young land-turtle ten feet in length, twenty-five feet in horizontal circumference, and fifteen feet in girth in a vertical direction."

A party of English naturalists were once exploring a tract of new country in India, and while digging a cellar in which to deposit their supplies during their stay in that vicinity, they struck something which seemed like bone, but which proved to be the shell of a huge land-turtle. They succeeded, with much effort, in unearthing it, and setting it up in shape, when it was found large enough to hold several of the men, the party at one time taking refuge in it during a storm. It was afterward destroyed by a severe storm. The species in India are now extinct, and it is supposed that they lived many hundred years before.

And there has been found in our own country recently, in the western part of Kansas, the remains of a giant sea-turtle. This one, from the tip of one extended flipper to

another, measures about seventeen feet. It has been carefully removed from the bluff in which it was imbedded, and taken to Philadelphia. Geologists are busy speculating as to how a marine animal could have been buried in Kansas soil.

Skeletons of other animals of vast proportions are frequently discovered in various parts of the earth, but why they have become extinct, man is left to conjecture.

BADGES OF THE APOSTLES.

THE painters of the Middle Ages used to represent the apostles with special badges which were generally symbolical of some incident in their lives. Andrew was depicted with a cross, because he was crucified; Bartholomew with a knife, because he was flayed; James the Greater with a pilgrim's staff and gourd bottle, because he was the patron saint of pilgrims; James the Less with a fuller's pole, because he was slain by Simeon the fuller with a blow on the head with his pole; John with a cup and a winged serpent flying out of it, in allusion to the tradition that the apostle was challenged by a priest of Diana to drink a cup of poison. John made the sign of the cross on the cup, whereupon Satan, like a dragon, flew from it, and the apostle drank the cup with safety. Judas was represented with a bag, because he bare the bag and "what was put therein;" Jude, with a club, because he was killed by that weapon; Matthew, with a hatchet, because he was slain by one; Matthias, with a battle-axe, because after having been stoned, he was beheaded; Paul, with a sword, because his head was cut off with one; Peter, with a bunch of keys and also with a cock, in reference to the familiar episodes; Philip, with a long staff surmounted by a cross, because he died by being hung by the neck to a tall pillar; Simon, with a saw, because he was sawn to death; Thomas, with a lance, because his body was pierced with a lance.

THE CROCODILE'S DENTIST.

WHAT think you it is? F. P. Chaplin, in *Our Little Ones*, says that "gnats and other small insects have a fashion of crowding themselves together in the crocodile's mouth, while he is lazily sleeping. They do so in such numbers that the broad palate and ample jaws are covered by them, forming a dark, heavy coating. It is then that the little black-headed plover comes to the rescue. He has all he can do to keep the teeth and palate of this large Saurian in order. With his sharp beak he rids his burly patron of these uncomfortable foes. This beak is his only tool; but with it he picks away in every corner and crevice. He loosens and throws off the closely packed mass of insect life, and the cruel monster is again ready for work.

"When or how he gets his pay, the plover never reveals. I have heard that a great friendship exists between the friendly plover and this giant of the waters. The plummy benefactor can, at any time, journey without cost, perched upon the crocodile's head; and many trips are taken in this way. He has been named 'Pluvianus Ægyptius,' because Egypt is his native place."

LIFE-CARS.

In a little gray house with a red roof, which stands on a desolate stretch of beach in Ocean County, New Jersey, there hangs an oval iron case which has a singular history. The house is a station of the Life-saving Service, and the case is the first life-car ever used in the world. Its story is as follows:—

After the organization of the Life-Saving Service as a branch of the Government, in 1871, its inspectors visited every part of the coast to examine into the condition of the station-houses and their equipments.

One of these officers was on the New Jersey coast during a heavy storm, when a ship was driven onto the bar. He saw the desperate efforts of the surfmen to reach her in their heavy life-boat. They at last succeeded, and took off as many of the passengers as the boat would hold, but in returning, it was swamped by the furious breakers, and rescued and rescuers were washed into the sea.

For weeks and months afterwards the inspector went about like a man distraught, intent on devising a model for a boat which should be at once light enough to handle in such seas, and heavy enough not to be overturned by them. The problem was so difficult that he was in despair. But one day he startled his companions by exclaiming, "Swing it on a cable, and put a lid to it!"

The idea was at once carried out. This life-car was made,—an oval, air-tight case closed by a lid which screws down, and hung by iron rings on a cable extended from the shore to the ship. On the first day it was used, two hundred persons escaped in it from the *Ayrshire*, a vessel wrecked off the New Jersey coast.

These cars, of an improved shape, are now to be found in every life-saving station. But this old battered veteran is regarded with a touching pride and affection by the brave surfmen.

"She has done good work in the world," they say; an epitaph which we would all be glad to share with the life-car.

RICE MIXED WITH HONEY.

WHAT would the children think of *Vary Tondrahantately* as a name for their paper? That is the name of the children's paper in Madagascar, which is read in a great many Christian households in that immense African island. How can the little tongues utter so long a word! But you will be surprised to know what this title means; it is: "Rice mixed with honey"! How very odd! Perhaps you may guess that it is so called because it is printed on "rice paper." No; but rice is the chief food of the Malagasy, like bread among us, and to make the rice pleasanter to the taste, it is often eaten with honey. This is the best kind of food multitudes of children of Madagascar can have, and so *Vary Tondrahantately*—"Rice mixed with honey"—is the name of their pretty pictorial paper, which is very sweet and good food for them.—*Mission Dayspring*.

WHY TUMBLERS ARE SO CALLED.

GLASS drinking-cups have been found in Anglo-Saxon graves, and they are all round-bottomed. Such cups could not be made to stand upright, and it has been supposed they were so designed in order to cause the drinker to empty them at once. This feature is said to have given rise to the word *tumbler* which has been applied to our drinking vessels, though these do not possess the curious shape of the ancient cups.

The Sabbath-School.

FIFTH SABBATH IN MAY.

IMPORTANT BIBLE SUBJECTS.

LESSON 6.—EXTENT OF THE LAW'S JURISDICTION.

(Continued.)

[NOTE TO THE STUDENT.—Do not consider the lesson learned until you can give at least the substance of every text, with the correct reference for each. The references in black letters indicate those texts that should be committed to memory. A little diligent application each day will enable you to learn them, although this need not be considered a test of scholarship.]

1. Did the law exist before it was spoken from Sinai? Give proof.
2. Can you prove that its claims are binding on Gentiles as well as on Jews?
3. Over what part of the earth has the law jurisdiction? Proof.
4. How many apartments were there in the tabernacle built by Moses? Ex. 26:33.
5. What article of furniture was in the most holy place? Ex. 26:34.
6. Why was it called the "ark of the testimony"? Ex. 25:16.
7. What was this "testimony"? Ex. 31:18; Deut. 10:4, 5.
8. Of what was this earthly tabernacle a pattern? Heb. 9:8, 9, 23, 24.
9. Was the furniture of the tabernacle, as well as the tabernacle itself, made according to this heavenly pattern? Ex. 25:9, 40.
10. Is there a real temple in heaven? Heb. 8:1, 2.
11. What article of furniture is specially noted as having been seen in it? Rev. 11:19.
12. Since the ark was called the "ark of the testimony" because it contained the tables of the law, what must be in the ark in the real temple in heaven? (See note.)
13. Then what relation did the tables which Moses placed in the ark bear to those in the temple in heaven? (See note.)
14. Where is the Lord's throne? Ps. 11:4; Hab. 2:20.
15. Between what beings is his seat? Ps. 80:1; 99:1.
16. In the earthly tabernacle, from between what figures did the Lord speak to the people? Ex. 25:22.
17. Then of what was the ark in the earthly sanctuary a representation?—*Of the throne of God in the temple in heaven.*
18. What was within the ark, and underneath the cherubim? Ex. 25:16, 22; Rev. 11:19.
19. Then what relation do the commandments sustain to the throne of God?—*They are underneath it, forming its foundation.*
20. Can you quote any texts of Scripture that directly support this conclusion? Ps. 89:14; 97:2. Compare Ps. 119:172.
21. How extensive is the authority of God's throne? Ps. 103:19.
22. Then how extensive must be the jurisdiction of the ten commandments?
23. Must they not, then, be the rule of conduct in heaven as well as on earth? Ps. 103:20.

NOTE.

In Ex. 31:18 we read that the Lord "gave unto Moses, when he had made an end of communing with him upon Mount Sinai, two tables of testimony, tables of stone, written with the finger of God." In Deut. 5:22 we learn that it was the ten commandments that were written on the two tables of stone; and from Deut. 10:4, 5 we learn that these tables were placed in the ark. Therefore we know that the ten commandments are the "testimony;" and when John says (Rev. 11:19) that in the temple of God in heaven he saw the "ark of his testimony," we must conclude that the ten commandments are in the ark. And, further, since the earthly tabernacle and its furniture were "patterns of things in the heavens" (Ex. 25:9, 40; Heb. 9:23, 24), we must also conclude that the ten commandments which were on the tables of stone in the tabernacle which Moses built, were but a copy of the ten commandments in the temple in heaven.

"IT IS MY BOY."

THROUGH Rochester, N. Y., runs the Genesee River, between steep and rocky banks. There are falls in the river, and dark recesses. One time a gentleman who lived in the city had just arrived on the train from a journey. He was anxious to go home and meet his wife and children. He was hurrying along the streets with a bright vision of home in his mind, when he saw on the bank of the river a lot of excited men.

"What is the matter?" he shouted.

They replied, "A boy is in the water."

"Why don't you save him?" he asked.

In a moment, throwing down his carpet-bag and pulling off his coat, he jumped into the stream, grasped the boy in his arms, and struggled with him to the shore, and as he wiped the water from his dripping face, and brushed back the hair, he exclaimed, "O God, it is my boy!"

He plunged in for the boy of somebody else, and saved his own. So we plunge into the waters of Christian self-denial, labor, hardship, reproach, soul-travail, prayer, anxious entreaty; willing to spend and be spent, taking all risks, to save some other one from drowning in sin and death, and do not know what a reflexive wave of blessing will come to our own souls.

In seeking to save others we save ourselves and those most dear to us, while others, too selfish to labor to save other people's children, often lose their own.—*Selected.*

Our Scrap-Book.

PURPOSE.

It is no dream,
No castle-building time, that we call life;
To catch the gleam
Of heaven in the strife,
Our toil must tend to reach the better life.

VEGETABLE CLOTHING.

PERHAPS you say that is no new thing, that clothing has always been made of vegetables, as from cotton, flax, hemp, etc. But in this instance what is meant by "vegetable clothing" is that which grows all ready for use. You may learn all about it in the following which C. J. Russell writes for the *St. Nicholas*:—

"About two hundred years ago the governor of the island of Jamaica, Sir Thomas Lynch, sent to King Charles II. of England a vegetable neck-tie, and a very good neck-tie it was, although it had grown on a tree and had not been altered since it was taken from the tree. It was as soft and white and delicate as lace, and it is not surprising that the king should have expressed his doubts when he was told that the beautiful fabric had grown on a tree, in almost the exact condition in which he saw it. It had been stretched a little, and that was all.

"But if King Charles was astonished to learn that neckties grew on trees in Jamaica, what must have been the feelings of a stranger traveling in Central America, on being told that mosquito-nets grew on trees in that country? He had complained to his host that the mosquitoes had nearly eaten him up the night before, and had been told in response that he should have a new netting put over his bed. The host calmly continued, 'In fact, we are going to strip a tree anyhow, because there is to be a wedding on the estate, and we wish to have a dress ready for the bride.

"'You don't mean,' said the traveler incredulously, 'that mosquito-netting and bridal dresses grow on trees, do you?'

"'That is just what I mean,' replied his host, 'and if you will follow the men, you will see that I speak the exact truth.'

"Looking for some jest, the stranger followed the two men who were to pluck the singular fruit, and stood by when they stopped at a rather small tree, bearing thick, glossy green leaves. The tree was about twenty feet high and six inches in diameter, and its bark looked much like that of a birch-tree.

"After cutting the tree down, three strips of bark, each about six inches wide and eight feet long, were taken from the trunk and thrown into a stream of water. Then each man took a strip while it was still in the water, and with the point of his knife separated a thin layer of the inner bark from one end of the strip. This layer was then taken in the fingers and gently pulled, whereupon it came away in an even sheet of the entire width and length of the strip of bark. Twelve sheets were thus taken from each strip of bark, and thrown into the water.

"When each strip of bark had yielded its twelve sheets, each sheet was taken from the water and gradually stretched sidewise. The spectator could hardly believe his eyes. The sheet broadened and broadened, until from a close piece of material six inches wide, it became a filmy cloud of delicate lace, over three feet in width. The astonished gentleman was forced to confess that no human-made loom ever turned out lace which could surpass in snowy whiteness and gossamer-like delicacy that product of nature.

"The natural lace is not so regular in formation as the material called illusion, so much worn by ladies in summer; but it is as soft and white, and will bear washing, which is not true of illusion. In Jamaica and Central America, among the poor people this wonderful lace supplies the place of manufactured cloth, which they cannot afford to buy; and the wealthier classes do not by any means scorn it for ornamental purposes.

"Long before the white man found his way to this part of the world, the Indians had known and used this vegetable cloth. Some time after King Charles received his vegetable neck-tie, Sir Hans Sloane, whose art collection and library were the foundation of the British Museum, visited Jamaica. He described the tree fully, and was the first person who told the civilized world about it. The tree is commonly called the lace-bark tree. Its botanical name is *Lagetto lintearia*."

THE ICE KING'S WORK.

THE readers of the INSTRUCTOR who have studied geography must have learned something about the great glaciers of the Alps, in Switzerland. They may have learned too, that there are glaciers in other countries, some quite as remarkable as the Alpine glaciers. Less is known of them, however, because fewer persons visit their locality.

A glacier is really a "river of ice;" and there are some things about one that seem very curious until understood. That a river of solid ice has a constant motion forward, seems almost incredible; but to test it, in 1827 a man built a hut upon a glacier, and it was discovered that every year the house was farther down the valley.

A writer in *Harper's Young People* says that "people who were interested to learn more about this movement set rows of stakes up in the ice, straight across from side to side of the glacier, and two on each bank to mark the starting point. This row of poles, as it moved, did not remain straight; it bent like a bow in the middle, curving out toward the lower end of the glacier, showing that the

middle part moved faster than the edge. This is known to be true of an ordinary river; the water rubbing against the banks and against the bottom of its bed is hindered, and moves more slowly than the water in the middle and on top does."

The same writer says the source of the glacier is in a high mountain valley, where a great body of snow becomes tightly packed; and that if you follow its course, you will see that it "gradually changes into a solid mass of whitish ice, scored all over with cracks and crevices, broken up into great masses and blocks of ice on the surface, and covered often with dirt and stones. Finally you come to a place where the weather is warm enough to melt the ice, and then it flows off as a stream of water."

Of the movement of the glaciers, she says:—

"Each winter, snow piles itself high on the mountain-top; each summer, this snow is softened and made slushy, but not melted. The soft snow sinks and packs, and is pushed down into the easiest channel. The next winter a new weight of snow is added, making a greater pushing force. It is hindered in its travels, and being pushed behind and hindered in front, it packs tighter and tighter till we find it, farther down in its bed, a mass of ice. The weight is getting greater and greater with each winter's load of snow; and so the ice is forced down, no matter what is in the way, and the valley is finally filled with the moving river of ice.

"A great many wise heads have been puzzled to know how ice can fit itself to the channel. Ice is one of the brittlest things in the world, but it has a quality that we do not often have occasion to notice. It melts easily, but it also freezes easily. The scientist Faraday discovered this quality of ice in a very commonplace way. One hot summer's day, in a restaurant, he noticed some bits of ice floating in a dish of water. The ice was melting; and yet every time two pieces touched, they froze. Tyndall, another great scientist, has explained the movement of glaciers by this simple principle. It was he who found that ice could be crushed out of one shape into another, and that the broken bits froze at once together and made a solid lump as the snow does. Now glacier ice, underneath the surface, is squeezed in a mold made of its bed and banks and the heavy weight of ice above; the moving part of the ice, which fits itself to the channel-mold, is broken and ground up into bits, but these bits, being pressed together again, freeze into the new mold that it is pushed into—that is, the new part of the channel—just as Tyndall's ice, which was at first squeezed in a round mold, came out a ball, and being squeezed again in a cup-shaped mold, came out a perfect cup of ice."

PHOTOGRAPH OF A FLASH OF LIGHTNING.

A PHOTOGRAPH has been taken of a flash of lightning, the main stream of which was about four feet broad. The flash consisted of four distinct parallel streams. Between the first and second streams were bright and dark stripes, the second and third streams were very close together, while there was a greater distance between the third and fourth. The four streams belonged to one flash, which passed to and fro from the clouds to the earth twice, using in its return journey the seam of air heated on its outward passage, and, as the different breadth of the spaces between shows, taking more to go to the earth than to reach the clouds.—*Sci.*

A SINGULAR NESTING-PLACE.

As a rule, birds select sites for their nests with an eye mainly to security from enemies. And as these enemies include flying, crawling, and walking creatures, the nests are very likely to be well-hidden. Occasionally, however, the feathered builder treats us to a surprise by fixing upon the most singularly unexpected spot.

The water ouzel may be credited with having selected the most picturesque place yet recorded. The ouzel is a member of the sweet-voiced thrush family, but is what may be called an amphibious bird, since it divides its time very impartially between the land and the water. It is a very nimble land bird, and a good flyer, too, while in the water it is as much at home almost as a fish.

A pair of ouzels once decided upon a spot just behind a waterfall. The only way to get at the ledge of rock was by flying through the waterfall; and this they did, going back and forth with building materials like a couple of school-boys on a frolic. The little birds were actually reared behind the transparent, ever-moving veil of water.—*Selected.*

HAMMER SIGNALS.

THERE are few boys either in the city or country who have not at times watched a blacksmith at work in his shop with his assistant, or striker. They have noticed that the smith keeps up a constant succession of motions and taps with a small hand hammer, while with his left hand he turns and moves the hot iron which the assistant is striking with a sledge. The taps are not purposeless, but given entirely for the direction of the striker. When the blacksmith gives the anvil quick, light blows, it is a signal to the helper to use the sledge, or to strike quicker. The force of the blows given by the blacksmith indicates the force of blow it is required to give to the sledge. The blacksmith's helper is supposed to strike the work in the middle of the width of the anvil, and when this requires to be varied the blacksmith indicates where the sledge blows are to fall by touching the required spot with his hand hammer. If the sledge is required to have a lateral, or side, motion while descending, the blacksmith indicates the same to the helper by delivering the hand hammer blows, in which the hand hammer moves in the direction required for the sledge to move. If the blacksmith delivers a heavy blow upon the work and an immediate light blow on the anvil, it denotes that heavy sledge blows are required. If there are two or more helpers, the blacksmith strikes a blow before each helper's sledge-hammer blow, the object being merely to denote where the sledge blows are to fall. When the blacksmith desires the sledge blows to cease, he lets the hand hammer head fall upon the anvil, and continues its rebound upon the same until it ceases. Thus the movements of the hand hammer constitute signals to the helper, and what appears desultory blows to the common observer, constitute the method of communication between the blacksmith and his helper.—*Exchange.*

THE plate at Windsor Castle is worth, in round figures, nearly two million pounds. It is all Crown property, which means, practically, that it belongs to the nation. If a single spoon were lost, it would have to be replaced by the queen. When there is a State banquet at the Castle, the plate on the table is usually worth at least two hundred and fifty thousand pounds.

The Sabbath-School.

FIRST SABBATH IN JUNE.

IMPORTANT BIBLE SUBJECTS.

LESSON 7.—PERPETUITY OF THE LAW.

[NOTE TO THE STUDENT.—Do not consider the lesson learned until you can give at least the substance of every text, with the correct reference for each. The references in black letters indicate those texts that should be committed to memory. A little diligent application each day will enable you to learn them, although this need not be considered a test of scholarship.]

1. GIVE as much proof as you can that the law existed before God spoke it from Sinai?
2. What relation do the ten commandments sustain to the throne of God?
3. From this, what must we conclude as to the extent of their jurisdiction?
4. How long is God's kingdom to endure? Dan. 4:3; 7:27.
5. Since God is to reign forever, and the ten commandments are the foundation of his throne or government, how long must they endure?
6. In what words does the psalmist corroborate this? Ps. 119:160.
7. To what would a change in the law be equivalent?—*To a change in the government of God.*
8. What strong language did Christ use concerning the law of God? Matt. 5:17, 18.
9. Can you refer to a noted prophecy that has not yet been fulfilled? Ps. 89:20-37; note especially verses 29, 36, 37.
10. How long will it take for this prophecy to be fulfilled?—*As long as the days of heaven, or to all eternity.*
11. Then how long will the ten commandments exist unchanged?
12. Quote a direct statement of the psalmist concerning the stability of the commandments. Ps. 111:7, 8.
13. What have we already found the ten commandments to be? Ps. 119:172.
14. Whose righteousness are they? Isa. 51:6, 7.
15. What does God say of his righteousness? Isa. 51:6, last part.
16. How long must the "righteousness of God" endure?—*As long as God himself endures.*
17. What does the psalmist say of the existence of God? Ps. 90:1, 2.
18. Then what must we still conclude as to the length of time the ten commandments will exist?
19. In making a direct address to the Jew, what does Paul say that he knows? Rom. 2:17, 18.
20. How does it happen that he knows God's will? Verse 18, last part.
21. Since "being instructed out of the law" causes one to know God's will, of what must the law be a statement?
22. What scripture further establishes the conclusion that the law of God is his will? Ps. 40:8.
23. Is God's will changeable? James 1:17.
24. In view of these different lines of argument, what must we conclude in regard to the law of God? Luke 16:17.

NOTE.

CHRIST said that not one jot or tittle should pass from the law till all be fulfilled." Matt. 5:18. From the preceding verse it appears that he had reference to the prophets, meaning that nothing should pass from the law until all the sayings of the prophets were fulfilled. In Ps. 89:20-37 we have a prophecy concerning Christ. To fulfill this prophecy will require all "the days of heaven," that is, all eternity. Therefore Christ's words are equivalent to the statement that the law will exist unchanged to all eternity.

THE AIMS OF THE SABBATH-SCHOOL.

THERE are three aims which should be kept constantly before the school.

Our first aim should be to make our school a place of thorough instruction in the Scriptures. By careful teaching in the class, by reviews and supplemental lessons from the desk, by awakening an interest in the Bible, and by quickening its study in the family, we should seek to give to all, and especially to the young people, a knowledge of the book which is able to make them wise unto salvation.

Our second aim should be to make the school a place of earnest, religious atmosphere. We would have it so freighted with religious influence that whoever enters it will realize that he is upon holy ground; that not one scholar shall grow up to mature years without being drawn to Christ; that the clearest conceptions of the spiritual life shall be imparted; the warmest experiences shall be encouraged; that the highest and fullest type of Christian character shall be developed.

Our third aim should be to make our schools a place of genuine enjoyment. Every gathering of our school should be so delightful that he who comes once will long to come again. We would have it a home to all who enter, with all the pleasant associations and all the fragrant memories of a cheerful Christian family circle.

Let every superintendent and every teacher keep before him these three aims, and work toward them.—*The Study.*

FAITH is the pencil of the soul, which pictures heavenly things.

Our Scrap-Book.

CONQUERORS.

BLESSED are they who die for God,
And earn the martyr's crown of light;
Yet he who lives for God may be
A greater conqueror in his sight.
—*Adelaide A. Proctor.*

THE CARICATURE PLANT.

THERE is such an endless variety of curious and wonderful things in Nature's workshop that should a naturalist devote all his time to their study he could not examine them all. Whether he gives his attention to the animal, the vegetable, or the mineral kingdom, there is ever something new and fascinating to attract the attention. Among the odd things recently discovered in the vegetable world is a plant which has the appearance of "making faces." A writer in the *St. Nicholas* thus describes it:—

"One of the most remarkable plants in the whole vegetable kingdom is that known to botanists as the *Justicia Picta*, which has also been well named the 'Caricature Plant.' At first sight it appears to be a heavy, large-leaved plant, with purple blossoms, chiefly remarkable for the light yellow centers of its dark green leaves, which causes them to look as if some acid had been spilled upon them and taken the color out wherever it had touched.

"As I stood looking at this odd plant and thinking what a sickly, blighted appearance the queer, yellow stains gave it, I was suddenly impressed with the fact that the plant was 'making faces' at me. Still, unaccustomed as I was to seeing plants indulge in this strictly human amusement, I was slow to believe it, and stooped to read the somewhat illegible inscription on the card below the plant—'*Justicia Picta*, or "Caricature Plant." My first impression was correct, then. This curious shrub had indeed occupied itself in growing up in ridiculous caricatures of the human face, until it now stood, covered from the topmost leaf down with the queerest faces imaginable. Nature had taken to caricaturing. The flesh-colored profiles stood out in strong relief against the dark green of the leaves.

"A discovery of one of these vegetable marks leads to an examination of a second and a third leaf, until all are scanned as closely and curiously as the leaves of the comic papers that form the caricature plants of the literary kingdom.

"I have never heard of the cultivation of the Caricature Plant in this country; but botanists tell us it is a hardy shrub. I think we should be glad to see the funny faces on its leaves. After all the lovely flowers we are called upon to admire, I am sure that a plant evidently intended to make us laugh would receive a warm welcome from our young people.

"The Chinese appreciate the Caricature Plant, and in some parts of China it is quite extensively cultivated. Perhaps some of the funny, grinning faces on Chinese toys and ornaments are reproductions of the grotesque features on the leaves of the plant.

"In this account of a very remarkable plant the writer has not drawn upon imagination. The *Justicia Picta* really exists. It is a native of the East Indies, and is a source of much amusement and curiosity to both botanists and travelers."

INTERESTING WATER SCENERY.

REV. JOHN A. CASS, in *Golden Days*, speaking of beautiful water scenery, says: "I suppose a person might travel the world over without finding it in such a variety of forms as in Switzerland. No landscape scene is perfect where this element is wanting, and almost none can be found without it in the whole country. From Zurich to Zermott, and from Geneva to Pontresina, it is always in sight. Every village has its fountain in the public square, and there is no little hamlet far away among the great mountains, or deep down in the sunless valleys, but has the music of perpetual streams."

But the writer thinks the beauty of this scenery appears in its most striking form in some of the springs and waterfalls in which the country so abounds. One of the interesting examples he gave was as follows:—

"Not far from the little village of Magland, as one journeys from Geneva to the far-famed Valley of the Chamouny, for mile after mile, the carriage-road runs along close under the overhanging cliffs, and the traveler has no reason to suspect that he will cross so much as a mountain brook. But as he turns a somewhat sharp curve, he suddenly hears the roar of a torrent. He sees no opening in the mountains, and is wondering whence the stream can have come, when, lo! he steps upon a bridge, and the mystery is solved.

"Not six yards from where he stands is a spring, or perhaps a number of springs, pouring forth a vast quantity of water in a most singular way. The water comes in jets, and appears so suddenly as to be almost literally shot out of the ground. It does not rise to any height, it is true, but it boils and bubbles as if some great heart were beating below, and an almost incredible volume of it is poured out within a very narrow compass.

"Stepping down from the bridge, I put my hand into one of the little openings in the earth whence the streams issued, and found that it required considerable effort to keep it there against the pressure.

"Some of the other places sent out streams even more powerful than this. Indeed, the volume of water was so great, and reached the surface so suddenly, that, within twenty feet from the first spring, the brook is fully twenty feet wide, and so deep that it cannot be forded, while so rapid is its flow that the strongest swimmer would be in most imminent peril if he should fall into it.

"Within a hundred yards from where it took its rise, the stream had swollen into a roaring and foam-covered river, whose waters were being utilized to turn the wheels of a mill or two, and might have furnished power to run many more.

"For awhile I stood looking at it in amazement, and then began to consider whence so much water came. There were no limestone cliffs through which it could have forced a passage here. Not ten feet behind the spring, rose up the mountain-wall, to the height of more than two thousand feet—a wall unbroken for many miles; so it seemed impossible that it could have flowed down through some half-hidden ravine.

"Some have endeavored to account for it by supposing

that far up on the mountains was a lake, to which this was the natural outlet. But the objections to this theory are serious; for, in the first place, it is not known that such a lake exists; and, secondly, if there was one at such a height, its waters, when forced so suddenly to the surface, would of necessity be thrown into the air for several feet, at least.

"The only conclusion at which the visitor to the spot can reasonably arrive is that he has before him a real spring, most remarkable for the volume of its water, and for the way in which that water comes to the surface."

AN EXTRAORDINARY TREE.

IN Nevada there is a species of acacia which possesses all the features of a sensitive plant. It is growing rapidly, being now eight feet high. At sunset its leaves fold together, and the ends of the twigs coil up, producing, if handled, evident uneasiness throughout the plant. When it was transferred from the pot in which it had ripened into a larger one, it displayed great agitation; as the gardener said, it went "very mad." It had hardly been in its new home ere its leaves began to stand up like the hairs on an angry cat's tail, and it was soon all in a quiver. Besides, it gave forth a most pungent and sickening odor, which filled the house so that doors and windows had to be opened, and it was fully an hour before the tree lapsed into a state of tranquillity.

LIVING LUNCH BASKETS.

HERE is something about some curious lunch baskets that will interest the little folks. It is from *Harper's Young People*, and the paragraphs read as follows:—

"Of course it is not at all surprising that you should carry your lunch with you when you are going to be away from home all day, but think of an animal's doing such a thing! There is the camel, for instance. Everybody knows that it carries its drinking water with it, but it does more; it carries its lunch too. That hump on the camel's back is not a curvature of the spine, as it may seem, but a mass of fatty material. That hump, in fact, is the camel's lunch basket.

"When a well-fed, healthy camel starts out on a journey across the desert, its water pouch is full, and its hump big. When water fails, the camel has only to draw on its reservoir, and when food is wanting, the hump is called upon. Not that the camel helps itself to bites of its hump. That would be a decidedly uncomfortable way of getting a meal, and very likely the camel would rather go hungry than do that. In some way the hump is gradually absorbed, and for a long time after the camel has been unable to find anything to eat, it can get along very comfortably on what its hump supplies it with. By and by, of course, the hump is used up, and then the camel will starve as quickly as any other animal.

"A great deal more like a genuine lunch basket is the bag the pelican carries its food in. The pelican is about as ungainly and odd a bird as can be found, and yet is a very interesting one. It has great, webbed feet, short legs, a big body, huge wings, and an enormous head. Its head is mostly bill; and on the under part of the bill, is a flabby bag made of tough skin. That bag can stretch and stretch until it can hold an incredible quantity of fish; for it is in that bag that the pelican puts the fish it catches for its food. When the bag is full, the pelican rises heavily from the sea, and with broad sweeps of its great wings flaps slowly to the shore, where it alights and prepares to enjoy the meal it has earned. One by one the still living fish are tossed into the air, and come down head first into the wide-opened mouth of the hungry bird.

"Then there are some of the South American monkeys which have curious little lunch baskets in their cheeks. Everybody must have seen monkeys stuffing and stuffing food into their mouths until their cheeks were bulged quite out of shape. It looks as if the greedy little fellows were merely cramming their mouths full. The truth is, many of the monkeys have queer little pockets in their cheeks, into which they can stow enough food for a meal. Nor do the full cheeks interfere at all with the chewing of the monkeys, any more than if the pockets were outside instead of inside of the mouth.

"But there is a little animal called the pouched rat, which has an odder way than this of carrying its food. On each side of its face is a pouch which looks very much like a kid glove finger drawn in at one end. These pouches stick straight from the face, and can be made to hold a large supply of food.

"The cow and deer and sheep and other similar animals have still another way of laying in a supply of food. They bite off grass and leaves, and swallow them without chewing at all. That food goes into a special stomach, there to stay until it is wanted. When the animal is ready for it, a ball of the food is made up in that first stomach, and sent up into the animal's mouth. That ball is just a mouthful, and the animal can chew it comfortably. After it is chewed and swallowed, it goes into the proper stomach, and is digested. Eating in that way is called ruminating."

DEAD CITIES OF CEYLON.

THE extent and beauty of the architectural remains of the great ruined cities in the interior of Ceylon are known to but few. There are many of them, and they are full of archeologic and artistic interest.

The city of Anuradhapur, to instance only one of them, is in its way as wonderful as Pompeii or those great forest-grown cities of Central America.

It is situated in a most lovely spot, among the green valleys and wooded hills of the interior of the island; and whichever way the eye is cast, there are ruins—wonderfully beautiful ruins of shrines, dagobas, pavilions, and groups of tall monolithic pillars, carved from base to capital with a wondrous wealth of oriental imagery.

For miles the forest is strewn with these majestic monuments of a long-since perished glory. So vast are some of these great brick-work buildings, that it is reckoned that the material of one dagoba, of the several at Anuradhapur, would be sufficient to build a wall more than ninety miles long, twelve feet high, and two feet thick.

The enormous artificial tanks, too, of this city might almost be included among the wonders of the world, so vast are the great dams that confine the waters, and so marvelous their construction. They lie now embosomed in the thick forest growth, and their shining waters are solitary but for the flocks of water-fowl upon them, and the crocodiles which float lazily on the surface, basking in the full glare of the vertical sun. The once busy banks are now deserted, except by the bands of chattering monkeys which haunt it by day, and by herds of darkness-loving elephants, which at night leave the inner depths of the forest and come to bathe and drink.—*Selected.*

The Sabbath-School.

SECOND SABBATH IN JUNE.

IMPORTANT BIBLE SUBJECTS.

LESSON 8.—REVIEW OF LESSONS 1-7.

1. STATE the circumstances under which the law was spoken from Mt. Sinai.
2. Upon what was it written?
3. What other name was given to that which was written on the tables of stone?
4. Where do you find the ten commandments recorded as the Lord spoke them?
5. Where were the commandments placed?
6. Repeat them.
7. How much of our duty do they cover?
8. Give the texts which prove that the ten commandments are the righteousness of God.
9. Then what did we conclude as to their nature?
10. What kind of character will those have who keep the commandments?
11. Prove that the law takes cognizance of what we think, as well as of what we do.
12. What is sin?
13. How much can a person do that is not right before the law will condemn him?
14. Prove that the law existed before it was spoken from Sinai.
15. Prove that it is binding on Gentiles as well as on Jews.
16. State as many arguments as you can, which show the extent of the law's jurisdiction.
17. Give the arguments by which it is proved that the commandments are the foundation of God's throne or government.
18. What does this prove as to the jurisdiction of the law?
19. Give as many proofs as you can for the perpetuity of the law.
20. What texts and arguments can you give to show that the law must exist unchanged to all eternity?

TWO WORDS FOR THE TEACHER.

WORDS MOST NEEDED ARE OFTENEST SAID: All teachers are not so Athenian in habit that only "some new thing" can catch and hold them; therefore the hope that a little stress laid here on two plain words may be of some service.

One of them is used by Paul in his second letter to Timothy (2:15)—"study." The exhortation given here by the great apostle to the young "teacher" at Ephesus, suggests some lines of endeavor which are by no means out of date in our time; without which, indeed, real success is impossible to the Bible-teacher anywhere.

We have in the clause, "Study to show thyself approved unto God," an ideal motive—the spring of true diligence in all directions. Could anything be more worthy of earnest endeavor? Study here will cut right at the root of shiftlessness in preparation, lifelessness in teaching, and carelessness in living. No teacher can afford to "take the chances" in a matter so vital as this. Risk the approval of self, of class, of fellow-teachers, of superintendent, of pastor, of church, if he will; but at any cost let him make sure of being approved unto God. Let him be like the railroad gate-keeper who, when told by an impatient crowd that he was "unpopular," quietly remarked that there was just one man in this world he cared to be popular with—the superintendent of the road.

Study to be "a workman that needeth not to be ashamed." If "approved unto God," the teacher need have no fear. But he must also give diligence to understand the *work* in which he is engaged—endeavor to realize its character, to grasp its aims and possibilities, to become familiar with its subject, to master its methods. Surely he must earnestly study it.

Study is necessary to "rightly dividing the word of truth." Weakness here is fatal. So he must give diligence to understand the *word* as well as the *work*—endeavor to realize its character, to grasp its possibilities, to become thoroughly familiar with it, to master its arrangement, to be filled with its spirit. He will give it such earnest study as its authorship warrants, its purpose deserves, its right handling demands.

But "study" is not all. There is a subtle "power" spoken of in the Scriptures, without which the most diligent student of both word and work will miss success. The Master possessed it; and in his parting words to the apostles he promised that they, too, should have it. The three thousand of Pentecost, the five thousand of later days (to say nothing of Acts 4:33), prove how well he kept his word. What is this "power"? Whence is it? May I possess it and use it? And how? These questions spring to the lip of the true worker for God.

Certainly its source is not in self. The listening, wondering multitude in Jerusalem knew better than that; the apostles themselves decried any such thought. It is "power from on high" (Luke 24:49); it is the "power of the Spirit" (Luke 4:14; Acts 1:8; 2:4; 4:31); it is the gift of God; and you and I may have it.

How may this "power" be obtained? By contact with

its Source. Electrical apparatus is familiar everywhere; pulsing wires web the air above us, and thread the ground beneath our feet. With circuit complete, these slender cords become channels of light, of sound, of power; the circuit broken, they are but dead strands of iron—all the costly machinery connected with them is useless. That "power with God" precedes "power with men," was a lesson taught at Peniel, not alone to the crafty, conscience-smitten Jacob, trembling because of Esau and his four hundred men; we "upon whom the ends of the world are come," sit at the feet of the divine Teacher, and the same lesson is taught us, enforced by the illustrations of thirty-six hundred years.—*Baptist Teacher.*

Our Scrap-Book.

LIVING LIGHTS.

AN interesting colony of sea animals is the genus pyrosoma, so called because it has the property of emitting light. Several species of this genus are known. Louis Figuier, in his "Ocean World," says:—

"The animal colony which constitutes this genus floats and balances itself upon the waters, being capable of fully contracting and dilating itself. According to the observations of Peron and Leseur, nothing can exceed the brilliant and dazzling light emitted in the bosom of the ocean by these animals. From the manner in which the colonists dispose themselves, they form occasionally long trains of fire; but it is a singular fact that the phosphorescence presents the same curious characteristics that are seen in the play of colors caused by the rapid movements of the cilia of Beroë; namely, that the colors vary instantaneously, passing with wonderful rapidity from the most intense red to yellow, from golden color to orange, to green, or to azure blue. Von Humboldt saw a flock of these brilliant living colonies floating by the side of his ship, and projecting circles of light having a radius of not less than twenty inches in diameter. He could see by this light the fishes which followed the ship's track, during many nights, at the depth of from two to three fathoms.

"Bibra, a Brazilian navigator, having caught six pyrosoma, employed them to light up his cabin. The light produced by these little creatures was so bright that he could read to one of his friends the description he had written of these his living torches."

A writer in "Marvels of Animal Life," says the "naturalist Mosley captured a pyrosoma four feet long, ten inches in diameter, with walls an inch in thickness. It was placed upon the deck of the vessel, and for a long time gave out no light; but writing his name upon the animal with his finger, it came out in letters of fire. Each letter then seemed to increase in size until the entire name was lost in a blaze of light that radiated rapidly and soon diffused the entire animal, presenting a marvelous spectacle, as if it had suddenly been heated to a white heat and various chemicals were being thrown on its surface to produce different colors."

THE DANCING BIRD.

A RECENT issue of the proceedings of the United States National Museum contains a very interesting account of a dancer bird, among the collection of birds at Nicaragua, called by the Spanish name "Toledo" (but pronounced "To-lay-do") on account of a fancied likeness to their whistling note. The natives also call this bird "Bailador," or "dancer." The writer states that it was not until he had been in the district some time that he understood why it was given the name. One day, while hunting through the dense forest, the profound silence was suddenly broken by the regularly repeated note of "El Bailador," and, softly making his way to the spot whence the sound proceeded, he witnessed one of the most remarkable performances he had ever seen. Upon a bare twig which overhung the trail, at a distance of about four feet from the ground, two male "Bailadors" were engaged in a song-and-dance act that astounded the beholder. The birds were about a foot and a half apart, and were alternately jumping about two feet in the air, and alighting exactly on the spot whence they jumped. They kept as regular time as clock-work, as one bird jumped up the moment the other alighted, while each accompanied himself to the tune of "To-le-do, to-le-do, to-le-do!" sounding the word "To" as he crouched to spring, "le" while in the air, and "do" as he alighted. This performance was continually kept up for more than a minute, when they suddenly noticed that they had an observer, and immediately flew off.

GOLD NUGGETS.

THERE must be something fascinating in the finding of gold by miners to make them endure so bravely what they have to in their search for it. In a pursuit where so much is risked and so few gain any considerable sum, one would suppose most persons would abandon the effort. The fascination probably comes from some having now and then picked up a single nugget worth hundreds and sometimes thousands of dollars. The lucky find serves as a bait to lure others on in the search for the precious metal, which *ignis-fatuus* like, very, very often is seen only in the distance. None of us, however, would object to picking up nuggets equal in value to what some of the more fortunate miners have found. J. M. T. Partello, in the *Chicago Times*, notices the most valuable discoveries. He says:—

"The largest gold nugget ever found in the world was discovered in 1858 in the Ballaret diggings, Victoria, Australia, and weighed 2,166 ounces troy. It was nearly pure gold, and sold for \$43,580. This mammoth nugget was called the 'Welcome,' and for many years was reckoned one of the modern seven wonders of the world.

"The first gold discovered in New South Wales was a tremendous nugget, and was found by a shepherd-boy while tending sheep. It was a large mass of quartz and gold, and weighed about a hundred pounds. He at once notified his master, and they broke it up with an ax. It split into three pieces, and out of the largest section was taken sixty pounds of pure gold. From the Victoria diggings were taken many fine nuggets. This colony sent, in 1862, to the London international exhibition an astonishing tower called the 'Gold Trophy.' It was an obelisk ten feet in height, representing in bulk all the gold found in the colony for the eleven years between 1851 and 1862.

"Since the finding of the 'Welcome,' many other big nuggets have been picked up in various parts of the world, but none equal to the great wonder of Ballaret. There have been found, however, nuggets varying in value from \$21,000, \$10,000, \$8,000, to nearly all sums below. California must be credited with the greatest number of nuggets, as well as with some of the large ones mentioned above.

The same writer says that "a dashing Cheyenne came into the post-trader's store at Ft. Keogh five years ago, holding in his hand a long icicle-shaped pendant of the purest kind of virgin gold, which he said he had broken off from beneath an overhanging rock in the Big Horn Mountains. He would tell no one the exact spot where he found it. How it came to be in the shape described is hard to say, unless the rock containing the gold was struck by lightning, which melted the gold, and it poured from the rock in a fluid state and cooled before falling to the ground."

He also says:—
"The first piece of gold found in California was worth 50 cents, and the second \$5. This little treasure is no larger than a pea, but it is perhaps the most remarkable piece of metal in the world's history. It is the identical glittering particle that first caught the eye of James Marshall in Sutter's mill-race, in California, thirty-nine years ago. That tiny glittering particle has added to the gold of the world nearly a billion and a half. This historical nugget is now among the collection of gems in the Smithsonian Institute at Washington."

CHINESE AND JAPANESE PAPER-MAKING.

THE following interesting paragraphs about Chinese and Japanese paper-making we quote from an article describing the manufacture of paper, by Chas. E. Bolton, in the August, 1885, *St. Nicholas*:—

"The hornet, whose sharp sting is the terror of children, is the recognized pioneer of paper-makers. Eighteen hundred years ago, the Chinese, acting upon the wasp's suggestion, made paper from fibrous matter reduced to pulp. Now, each province makes its own peculiar variety from the innermost bark of different trees. The young bamboo, which grows six or eight inches in a single night, is whitened, reduced to pulp in a mortar, and sized with alum. From this pulp, sheets of paper are made in a mold by hand. The celebrated Chinese rice paper, that so resembles woolen and silk fabrics, and on which are printed quaint birds and flowers, is manufactured from compressed pith, which is first cut spirally, by a keen knife, into thin slices, six inches wide and twice as long. Immense quantities of paper are used by the Chinese for a great variety of purposes. Funeral papers, or paper imitations of earthly things which they desire to bestow on their departed friends, are burned over their graves. They use paper window-frames, paper sliding-doors, and paper visiting-cards a yard long. It is related that when a distinguished representative of the British government once visited Peking, several servants brought him a huge roll, which, when spread out over the large floor, proved to be the visiting-card of the Chinese Emperor.

Early in the Christian era, the Japanese employed silk faced with linen, and also wood shavings, for writing material. In 1610, A. D., they began to make paper from vegetable fiber, and their ingenuity is indeed marvelous. From several hundred varieties of paper they manufacture lanterns, candle-wicks, hair-pins, umbrellas, artificial flowers, fans, handkerchiefs, hats, sword-proof helmets, telescope tubes, water-proof under-clothing, etc. A formal Japanese poet uses in writing, for poetry or songs, four distinct kinds of paper, specially designed. Imitation leather, which we have just begun to make, is old-fashioned with them. The skill of the Japanese in handling long fibers without injury enables them to make their parchment-like paper very tenacious and durable.

It is claimed that the Mandarin Teailien invented rag-paper. Whether this is true or not, the Chinese secret was early known in Persia and Arabia, and gradually the Europeans began and rapidly improved the art of manufacturing paper."

THE ISLE OF JUNE.

"WHAT is the most beautiful place that you have ever visited?" asked a lady of an old English naval officer. "New Providence, in the Bahamas," was the answer. To this view many travelers would not assent, but Nassau, as the island is popularly called from its principal town, is one of the most beautiful gardens of the sea.

Columbus, who visited the island during his first voyage, called it Fernandia, and Ponce de Leon thought that he had found here the earthly Paradise. An old English adventurer named it New Providence, and tourists of recent years call it the Isle of June, because the winter months are like June in the temperate zones. Nassau is the capital of the Bahamas.

It is a place of old sea romances, from the dramatic pirates to the blockade runners. English naval officers, worn with service, are often sent here to recruit. England holds it to be one of her most health-giving retreats.

The island is some twenty-one miles long and seven wide, and is famous for its cocoa-nut trees and pine-apple farms. The winter market of Nassau is one of the most wonderful in the world, as in it are found all the products of the tropics, together with those of the temperate zones. Mr. Frank Stockton, in a magazine article on the "Isle of June," once gave a list of the fruits to be found there, an amazing catalogue of familiar and unfamiliar names. It is also famous for green turtles, and the sea is as prolific in food as the land in fruit.—*Youth's Companion.*

At the Cape of Good Hope, near Table Mountain, the clouds come down very low now and then without dropping in rain. At such a time, if a traveler should go under a tree for shelter from the threatening storm, he would find himself in a drenching shower; while out in the opening, away from any tree or shrub, everything would be as dry as a bone.

The cloud, or mist, is rather warmer than the leaves, you see, and so when it touches them, it changes into clinging drops, which look like dew. Fresh drops keep forming; they run together; and, at length, the water drips off the trees like rain. And this process continues until the clouds lift, and the sun comes out again.

A LARGE proportion of the red coral used by jewelers in making ornaments comes from the Mediterranean coast of Algeria, where it is gathered chiefly by an ingenious machine. Nets, the meshes of which are loose, are hung on the bars of a cross, and dragged at the bottom of the sea among the nooks and crevices of the rocks. These nets, winding about the coralline growth, break off its branches, which adhere to the meshes. When he thinks it is laden, the fisherman draws the net to the surface and helps himself to the coral, which is sold in various markets and worked into ornaments.—*Sel.*

The Sabbath-School.

THIRD SABBATH IN JUNE.

IMPORTANT BIBLE SUBJECTS.

LESSON 9.—CHRIST THE END OF THE LAW.

[NOTE TO THE STUDENT.—Do not consider the lesson learned until you can give at least the substance of every text, with the correct reference for each. The references in black letters indicate those texts that should be committed to memory. A little diligent application each day will enable you to learn them, although this need not be considered a test of scholarship.]

1. WHAT does Paul say that Christ is to every one that believeth? **Rom. 10:4.**
2. Does this mean that Christ came to abolish the law? **Matt. 5:17; Isa. 42:21.**
3. In what sense besides "termination" is the word "end" frequently used?—*Design, object, or purpose.* See Webster's Unabridged Dictionary, definition 4.
4. Quote a text from the Bible where it evidently has this meaning. **James 5:11;** or any one of the following: **Rom. 14:9; John 18:37; Amos 5:18; Luke 18:1; Heb. 13:7; 1 Peter 1:9.**
5. What does Paul elsewhere say is the end of the law? **1 Tim. 1:5.**
6. What is the meaning of "charity"?—*Love.* See rendering of this text, also of **1 Cor. 13,** in Revised Version.
7. And what is love? **1 John 5:3; Rom. 13:10.**
8. Then to what is Paul's statement in **1 Tim. 1:5** equivalent?—*"Now the design of the commandment (or law) is that it should be kept."*
9. If a man kept the law, how would he stand before God? **Rom. 2:13.**
10. Then what may be said to be one end or design of the law?—*To justify men before God. This may truly be said to be its object, for it will justify only the obedient, and it is the design that the law should be obeyed.*
11. What would be necessary in order that a man could be called a "doer of the law"?—*It would be necessary that he should have kept the law in every particular during every moment of his life.*
12. Has any body ever kept the law thus perfectly? **Rom. 3:10-12.**
13. Then must not the law fail of its object in securing the justification of men? **Rom. 3:20.**
14. How, then, is it possible for a man to secure justification? **Rom. 3:24, 25.**
15. Then in what sense may Christ be called the end of the law?—*He secures the justification of men, a thing which the law can no longer do.*
16. What have we learned was a primary design of the law? See answer to question 8.
17. Is it possible for any man to meet this requirement? **Gal. 5:17.**
18. How is it possible for any one to do what is required? **John 15:5.**
19. For what express purpose did Christ suffer for man? **Rom. 8:3, 4.**
20. Then how again is Christ the end of the law?—*He enables those who are "in him" to keep the law, thus fulfilling its design.*

THE REWARD.

"He that watereth shall be watered also himself." In no case is this more true than in regard to the Sabbath-school teacher. From sincere effort to instruct others in the truths of the kingdom, there shoot forth a thousand reflex influences that enlarge and enrich the worker. The increased knowledge of the Bible from its systematic study, and the attempt to apply its truths to the lives and consciences of others, brings an almost boundless wealth. Diligent service along this line develops spiritual power and blessedness, as perhaps nothing else can do. The Book of God is, to thousands of feeble believers, almost a sealed volume because read but little, and studied not at all. There are some glittering gems upon the surface, as gold and silver are sometimes found above the ground; but he who would be rich must dig below. The teacher's work is in a mine of preciousness. Strike hard, and the ring of precious metals shall be heard. But again, the teacher's fullness is fuller still when to this personal profit is added the joy of rescue. The life-boat is manned with brave seamen, and off for the wreck. Listen to the shout from the shore: "A thousand dollars for every man, woman, or child brought safely to land!" By and by the brave fellows return with one living man plucked out of the sea.

A life saved is more than money. The dollars they may justly have, but the saving of life is a reward of grander proportions. The consecration of one young life after another to Christ under the influence of faithful teaching—oh! the joy is deeper than plummet ever sounded. Still further, and better than all else, is the glorifying of the Master. "Inasmuch as ye have done it unto one of the least of these, ye have done it unto me." To lay our crowns of joy and triumph at Jesus' feet; to give supreme glory unto God and magnify his name, is the soul's highest heaven.

"Well done, good and faithful servant," will bring a thrill and rapture of blessedness, because he whom we serve is pleased. The favors of God are all of grace. We cannot deserve them, yet our divine employer speaks of them as rewards; and so in one sense they are our wages!

Blessed Master, blessed work, blessed wages! Surely we may not avoid, but the rather beg for such service. In the great workshop of God there need be no strikes.—*Baptist Teacher.*

Our Scrap-Book.

HUMBLE STATION.

DEEM not thy toil obscure,
It shall have luster, being rarely done;
Not ours to choose, but ours to use aright
The gifts of God, or ten, or only one.
—O. N. Potter.

THE NEWSPAPER PLANT.

JACK-IN-THE-PULPIT, in a late *St. Nicholas*, thus describes this curious tree or plant. He says:—

"It seems that in certain far-away countries called New Mexico and Arizona, there are great tracts of desolate desert lands, where the very hills seem destitute of life and beauty, and where the earth is shriveled from centuries of terrible heat. And in these desert tracts grows a curious, misshapen, grotesque and twisted plant that seems more like a goblin tree than a real one.

"Of all the trees in the world, you would imagine this to be the most outcast and worthless—so meager a living does it obtain from the waste of sand and gravel in which it grows. And yet this goblin tree is now being sought after and utilized in one of the world's great industries—an industry that affects the daily needs of civilization, and is of special importance to every girl and boy.

"Those wise folk, the botanists, call our goblin tree by its odd Indian name of the "Yucca" palm. This plant was for a long time considered valueless. But not long ago it was discovered that the fiber of the Yucca could be made into an excellent paper. And now one of the great English dailies, the *London Telegraph*, is printed upon paper made from this goblin tree. Indeed, the *Telegraph* has purchased a large plantation in Arizona, merely for the purpose of cultivating this tree, and manufacturing paper from it. So you see, the Yucca is now a newspaper plant."

THE PICTURED ROCKS OF VIRGINIA.

THE pictured rocks on the Evansville pike, have been a source of wonder and speculation for more than a century, and have attracted much attention among the learned men of this country and Europe. The cliff upon which these drawings exist is of considerable size, and within a short distance of the highway above mentioned. The rock is a white sandstone which wears little from exposure to the weather, and upon its smooth surface are delineated the outlines of at least fifty species of animals, birds, reptiles, and fish, embracing in the number panthers, deer, buffalo, otters, beavers, wildcats, foxes, wolves, raccoons, opossums, bears, elk, crows, eagles, turkeys, eels, various sorts of fish, large and small snakes, etc. In the midst of this silent menagerie of the specimens of the animal kingdom is the full length outline of a female form, beautiful and perfect in every respect. Interspread among the drawings of animals, etc., are imitations of the footprints of each sort, the whole space occupied being one hundred and fifty feet long by fifty wide. To what race the artist belonged, or what his purpose was in making these rude portraits must ever remain a mystery; but the work was evidently done ages ago.

FLOWERLAND.

In a late *Chicago Times* is an article entitled "Curiosities of Science and Literature," by Felix L. Oswald, in which the writer describes a sort of paradisaical flowerland. He says:—

"The terrestrial flowerland par excellence is the Caspian slope of the Caucasus range, near the pass of Derbent, the ancient Pylæ Caucasie. The mountains, to a height of five thousand feet, are all summer aflame with flowers, both in the forests and open glades. All sorts of blooming creepers stretch their festoons from tree to tree; flowery mountain meadows attract swarms of butterflies; hollyhocks and tiger-lilies are found near the upper limits of arboreal vegetation. A correspondent of the *Ausland*, who visited that Caspian Florida in the company of a party of Russian railway surveyors, comes to the conclusion that the highlands of the East were, after all, nature's favorite garden spots, and that the master races of mankind who abandoned that paradise have, in many respects, gone farther to fare worse."

BIRD-WAYS.

OLIVE THORNE MILLER, in the *Atlantic Monthly*, writes some very curious and interesting things about the ways of her pet birds. She says:—

"Birds not only cough and sneeze, but they dream and snore, making most distressing sounds, as if straggling. They hicough—a very droll affair it is too—and they faint away. The goldfinch, being frightened one night, in his struggles was caught between the wires, and gave a cry like the squeak of a mouse in distress. On my hastening to his release, he slipped out into the room and flew wildly about until he hit something and fell to the floor. He was picked up, and his fright culminated in a dead faint. The little head drooped, the body was limp, apparently perfectly lifeless, and he was laid in his cage, ready to be buried in the morning. He was placed carefully on the breast, however, and in a few minutes he hopped upon his perch, shook out his ruffled feathers, and composed himself to sleep.

"One feat sometimes ascribed to man is in the case of birds a literal fact—they can sleep with one eye open. This curious habit I have watched closely, and I find it common in nearly all the varieties I have been able to observe. One eye will close sleepily, shut tight, and appear to enjoy a good nap, while the other is wide-awake as ever. It is not always the eye toward the light that sleeps, nor is it invariably the one from the light. The presence or absence of people makes no difference. I have even had a bird stand on my arm or knee, draw up one leg and seem to sleep soundly with one eye, while the other was wide open. In several years' close attention I have been unable to find any cause, either in the position or the surroundings, for this strange habit.

"No 'set old woman' is more wedded to her accustomed 'ways' than are birds in general to theirs. Their hours for eating, napping, and singing are as regular as ours. So, likewise, are their habits in regard to alighting places, even to the very twig they select. After a week's acquaint-

ance with the habits of a bird I can always tell when something disturbing has occurred, by the place in which he is found. One bird will make the desk his favorite haunt, and freely visit tables, the rounds of chairs, and the floor, while another confines himself to the backs of chairs, the tops of cages, and picture-frames. One hermit-thrush frequented the bureau, the looking-glass frame, and the top of a card-board map which had warped around until the upper edge was almost circular. On this edge he would perch for hours and twitter and call, but no other bird ever approached it. Still another would always select the door-casing and window cornices.

"Every bird has his chosen place for the night, usually the highest perch on the darkest side of the cage. They soon become accustomed to the situation of the dishes in their cages, and plainly resent any change. On my placing a drinking cup in a new part of the cardinal's residence, he came down at once, scolding violently, pretended to drink, then looked over to the corner where the water used to be, and renewed his protestations. Then he returned to the upper perch, flitting his tail and expressing his mind with great vigor. A few minutes passed and he repeated the performance, keeping it up with great excitement, until, to pacify him, I replaced the cup. He at once retired to his usual seat, smoothed his roughened plumage, and in a few moments began to sing. A dress of new color on their mistress makes great commotion among these close observers, and the moving about of furniture puts the tamest one in a panic."

A CURIOUS FASHION.

ONE of the principal jewellers in New York received lately a number of petrified eyes, extracted from the bodies of mummies in Peru. Thousands of these mummies are found in a rainless region, where they have been long exposed in large niter beds.

The eyes were commonly supposed to be those of cuttlefish, but Professor Raimondi, an eminent ethnologist, declares that they are human. They reflect a beautiful amber luster when polished, similar to that of the Mexican fire opal.

A fashionable woman in New York sent twenty of them to a jeweller to be set in a necklace, but three lapidaries, on attempting to cut and polish them, were in turn seized with violent sickness, and refused to work on them. Scientific men are eagerly searching for the cause of this singular poison; and their owner has been forced to find some other ornament for her neck than the shining eyes of dead men.—*Youth's Companion.*

THE EARLY DAYS OF THE MAGIC LANTERN.

THE very name of the lantern, which gives us so many happy hours, proves to us that there was a time when people did not understand it, and were more scared than amused by its exhibitions.

It was indeed first invented in the dark ages of the world, when every thing which was new and wonderful struck terror to the hearts of most people. Magic in those days was a profession; and by pretending to see into the future, or work some magic spell in the present, men who were a little more clever than their neighbors gained a dishonest living, and ruled their dupes by fear. Thank God, those times have long since passed away; and with the spread of the gospel, all such silly fears have passed away.

No one knows for certain who invented the magic lantern. Like many another clever invention, it has been assigned to different people, from Roger Bacon in the thirteenth century, to Etienne Gaspard Robat in 1787. Perhaps we shall not be far out if we suppose that all the many men who are said to have invented it really helped to bring it to the state of perfection in which we now see it. One thing is certain, that if the original inventor of the magic lantern could be present now at one of our scientific lectures, where gorgeous dissolving views, lighted by electricity, strike joy and wonder to the hearts of the beholders, he certainly would hardly recognize the child of his brain.

The first description we have of the magic lantern was written by Athanasius Kirchen, who died in 1680, in a book called "The Great Art of Light and Shade;" but a man named Porta in Naples alluded to it nearly a hundred years earlier. At that time it was mostly used, as we have hinted, to work upon people's fears, by pretending to supernatural powers.

Real figures were used, such as shrubs, trees, and people. The room in which the expectant audience sat was darkened, and the picture was let in through a hole in the shutter. Then, as now, lenses were used to make the figures fall in their proper position on the wall.

The first lantern was a square box lighted by a lamp, which hung from the top by a chain. As the wick was not covered, there were clouds of smoke, which must have considerably spoiled the show. By this time the living figures were done away with, and three or four badly-painted figures of skeletons and such horrors took their place. Even in 1787, we find Robat giving a horrible representation of witches at Liege, and we cannot help wondering that rich and poor should have flocked to see the latest marvel.

The next improvement was a brass reflector; but even then its imperfections were so great that the magic lantern was but little used till 1789, when Aime Argand invented a lamp which gave more light and no smoke. From that time, one improvement followed another; till now, instead of being a toy or a terror, it is a popular source of amusement and instruction.—*S. S. Advocate.*

MYSTERIES OF A LUMP OF COAL.

FOR years no one supposed that a lump of soft coal, dug from its mine or bed in the earth, possessed any other quality than being combustible, or was valuable for any other purpose than that of fuel. It was next found that it would afford a gas which was combustible. Chemical analysis proved it to be made of hydrogen. In process of time mechanical and chemical ingenuity devised a mode of manufacturing this gas and applying it to the lighting of buildings and cities on a large scale. In doing this, other products of distillation were developed, until, step by step, the following ingredients for materials are extracted from it: 1. An excellent oil to supply light-houses, equal to the best sperm oil, at lowest cost. 2. Benzole—a light sort of ethereal fluid, which evaporates easily, and, combined with vapor or moist air, is used for the purpose of portable gas-lamps, so called. 3. Naphtha—a heavy fluid, useful to dissolve gutta percha, India rubber, etc. 4. An excellent oil for lubricating purposes. 5. Asphaltum, which is a black, solid substance, used in making varnishes, covering roofs, and covering over vaults. 6. Paraffine—a white crystalline substance, resembling white wax, which can be made into beautiful wax candles; it melts at a temperature of 110 degrees, and affords an excellent light. All these substances are now made from soft coal.

The Sabbath-School.

FOURTH SABBATH IN JUNE.

IMPORTANT BIBLE SUBJECTS.

LESSON 10.—CHRIST THE END OF THE LAW.

(Continued.)

[NOTE TO THE STUDENT.—Do not consider the lesson learned until you can give at least the substance of every text, with the correct reference for each. The references in black letters indicate those texts that should be committed to memory. A little diligent application each day will enable you to learn them, although this need not be considered a test of scholarship.]

1. To whom is Christ the end of the law? Rom. 10:4.
2. For what purpose is he the end of the law to believers? Rom. 10:4.
3. What is righteousness?—*Obedience to the law.* See Deut. 6:25.
4. What will those have who keep the law? Rom. 10:5; Matt. 19:17.
5. Then since it was designed that men should keep the law, to what may the law be said to have been ordained or designed? Rom. 7:10.
6. But since all men have violated the law, what does it now bring them? Rom. 7:10; 6:23.
7. By what means has life again been brought to view? 2 Tim. 1:10.
8. Who has life to bestow? John 5:25, 26.
9. For what purpose did he come to earth? John 10:10.
10. To whom will he give this life? John 3:16.
11. Since the law, which was ordained to life, cannot, because of sin, give us life, who is now our life? Col. 3:4.
12. Then how, as a whole, is Christ the end of the law?—*He secures to believers justification before God (Rom. 3:24, 25; 8:1); he enables us to keep the law (Rom. 8:3, 4), a thing that without him we could not do (Gal. 5:17; John 15:5); and as a consequence of our continued faith and obedience, he secures to us eternal life (John 3:16; Matt. 19:17; Rev. 22:14); thus enabling the law to fulfill its design, which was to give life (Rom. 7:10).*
13. Then what may Christ truly be said to be to those who believe in him? 1 Cor. 1:30.
14. In whom alone can we be complete? Col. 2:8-10.

LOVE LAYING DOWN LIFE.

AN aged woman, who for many years had loved and walked with her Lord, was startled one night by a summons to the room of a beloved daughter who had been seized with sudden illness. The mother gave one look at the dear face, and believing that she saw the child of her love slipping from her, rushed from the room to summon help. Out into the dark, chilly night, wholly unconscious of herself, went the tenderly cherished, feeble woman, just risen herself from a sick-bed, with one thought impelling her, "I must have help for my child."

The physician lived just across the way. She rang his bell, bade him come quickly, and then sank down, never to rise again, the slender thread of life snapped short by this supreme act of self-forgetful love! They bore her tenderly to the beautiful home in which all rose up to call her blessed, and then a few more breaths, the low murmuring of "Our Father," and the precious old saint had passed "beyond the smiling and the weeping."

Now and then, right into this prosaic, common-place life of ours, comes some striking object-lesson like this to call attention to the central truth taught by our Lord—that love lays down life. Love is not sentiment; it is sacrifice. Love forgets itself in remembering others. Love throws its own life away that life dear to our Lord may be saved! "Whosoever will lose his life for my sake shall find it."

Is not this lesson of practical import to us as Sabbath-school teachers? If we be rightly moved toward this work, it is love that moves us. If we let love draw us whither it will, each child entrusted to our care will be a dear one, because one of His, and therefore one for whom we will gladly lay down life, to the putting aside of our pleasures, our plans, our engagements, where these may possibly conflict with a chance for ministry to "one of the least of these."

If we let love move us, our service will be delightful, though it may cost much of time and strength and heart interest. The teacher who loves much will have great reward, for the joy of life is in loving, not in being loved. "He who loveth is born of God."—*S. S. Journal.*

Not the number of scholars in the class, but the number of scholars really reached and impressed for good by the teacher, measures the immediate work of the teacher. The larger number measures the teacher's opportunity; the smaller number measures the teacher's performance.

A good opinion of one's self is not usually numbered among the Christian virtues. And yet what the world and the Church greatly need to-day is more men who have a good opinion of themselves—so good an opinion of themselves that they would scorn to cherish low aims, or to do a dishonorable action, or to consent to anything on which falls the shadow of a falsehood, or to do wrong to another in word or deed. Thrice miserable is he who has so low an opinion of himself that he does not think these things beneath him, and who consents still to justify that low opinion of himself.

Our Scrap-Book.

BEST OF ALL.

BE noble—that is more than wealth;
Do right—that's more than place;
Then in the spirit there is health,
And gladness in the face;
Then thou art with thyself at one,
And, no man hating, fearest none.

—George MacDonald.

HOW CAMPHOR IS OBTAINED.

THE spirits of camphor, so commonly used in nearly every household, is a solution made by dissolving camphor gum in some kinds of spirits; but this aromatic gum is not so easily obtained as the spicy pine, spruce, and hemlock gums that the boys find so readily in some of the swamps in the United States. Camphor gum is procured principally from Japan, the islands of Formosa, Borneo, and Sumatra, and one species, it is claimed, is found in China.

There are two kinds of the gum in trade, one kind of which is monopolized by the Chinese, who, it is said, "pay for it at the rate of \$1,000 to \$1,200 the *picul* (133½ lbs.), or for a very superior quality even \$3,000 for one cwt." This species is procured in some parts of Borneo and Sumatra, from trees which sometimes reach one hundred feet in height, and six or seven feet in diameter. One tree is described as measuring fifty feet in circumference. The Chinese value this kind as worth 70 or 100 times more than the other. The "American Cyclopaedia" says the gum of this species is found in "solid masses, deposited in fissures and crevices which run lengthwise of the heart of the wood, and is extracted by splitting the trunk in pieces and picking out the lumps with a pointed instrument or the nail, when they are small. Some lumps have been found as large as a man's arm; but the product of a large tree does not often reach twenty pounds. Half this amount is a good yield for a middling-sized tree, and in hunting for one, many are cut down and split up with great labor that furnish no camphor; hence the high price of the camphor."

Japanese camphor, which supplies the trade principally in this country, is largely exported from one of the Japanese islands. The following concerning this species we gather from an article in *Popular Science Monthly*:

"Many of the trees grow to great size; in some parts of the island they measure ten or twelve feet in diameter, while in other parts are trees measuring twenty feet across. After growing twenty or thirty feet without limb, they branch out in all directions, forming a well-proportioned and beautiful evergreen mass. The wood is valuable for cabinet-work, and for purposes of ship-building [because it is never attacked by the destructive insects which swarm the East]. The camphor tree is necessarily destroyed in the manufacture of camphor, but the law requires a new one planted in place of every one taken away."

"The gum is extracted from the chips by distillation, the whole tree being cut up for the purpose, and steamed in a tight vessel or box. The steam, camphor, and oil, the immediate products of the process, are conducted through a bamboo tube to a second tub, and from this to a third, which is divided into an upper and a lower compartment. The partition between the two divisions is perforated with small holes to allow the oil and water to pass to the lower compartment. The upper compartment is supplied with a layer of straw, which catches and holds the camphor in crystal. The camphor is then separated from the straw, and packed in wooden tubs containing a *picul*, or 133½ lbs. each, for the market. [It is rated at only twelve or fifteen dollars the *picul*]. The oil is used for illuminating and other purposes."

PROVIDENCE SPRING.

A CORRESPONDENT of the *Inter-Ocean Curiosity Shop* asks the following question concerning Providence Spring:—

"Is it true that in the Andersonville prison-pen, during the late civil war, at a time when the water in the creek had become very scarce and foul, and the captive Unionists were dying from this cause, a spring suddenly burst from the hillside?"

In answer to this question the *Curiosity Shop* quotes Mr. John McElory, who spent fourteen months in the Jacksonville prison, as follows:—

"Toward the end of August, 1864, the water in the creek was indescribably bad. Before the stream entered the stockade, it was rendered too filthy for any use by the contaminations from the camp of the guards, situated about half a mile above. Immediately upon entering the stockade its pollution became terrible. The oozy seep at the bottom of the hillside drained directly into it all the filth from a population of 33,000. . . . The prisoners dug wells in the swampy earth with their pocket-knives to a depth of twenty to thirty feet, pulling up the earth in pantalon legs. But a drought came on, and these wells, which at best were not free from pollution, began to fail. To approach too close even by a hair's breadth, to the 'dead line' where the creek entered, in the effort to get water as free from filth as possible, was to sign one's death warrant. . . . Sickness had multiplied in this horrible prison-pen until the wretched victims of such barbarism sat constantly face to face with despair. At this awful extremity, what was the astonishment and gratitude of the camp one morning when it was discovered that during the night a large, bold spring had burst out on the north side, about midway between the swamp and the summ of the hill, and was pouring out a grateful flood of pure, sweet water, in an apparently exhaustless quantity."

This was the morning of August 13, 1864. The overjoyed prisoners christened it "Providence Spring," a name quite fitting; for why would not God cause water to gush from the hillside to save the lives of those men suffering in the attempt to put down the same cause from which he was delivering the Israelites when Moses smote the rock, and the waters gushed forth for the thirst-stricken hosts of Israel?

J. W. FULTON.

MAKING THE ALLIGATOR USEFUL.

THE following letter from Florida to the *Chicago Times*, as published in the *New York World*, May 16, 1886, may express the high value that is set upon this animal by some, at least, in the land of its nativity; but we think most any Northerner would incline to feel, "Too much-ee alligator."

"A heathen stranger would certainly say that the alligator was the totem of the tribe and the presiding genius of the place; for it is no exaggeration to say that one may see that reptile here in a thousand appearances—dried or stuffed in the shops, highly ornamented in the stores, alive in the tanks, big alligators in pens, imitation wooden alligators on the streets, little alligators in tubs, alligators of assorted sizes in museums, skeletons of alligators in the drug stores, alligator skins tanned in the leather stores, and hundreds of different articles of jewelry of alligator teeth mounted on gold, silver, or nickel. You can buy a live alligator from six inches to two feet long, or a dead, dried, and stuffed one fourteen feet long."

"A favorite device here is thus manufactured: An alligator two feet long, with a tail as much longer, is split down the front. After taking out the entrails, the tail is bent up so that the creature can be put in a sitting posture, when they sew up the front and color it to conceal the opening, afterward drying it to solidity. Then, with open mouth and glistening teeth, the cadaver is set upon a stand at the door, and smiles a saurian welcome on the customers. The forelegs are often bent around a card-basket or Japan saucer; and if for sale, a placard held in its mouth announces, 'I want to go North,' or 'I smile to see a customer,' or the like. One is surprised to find the ugly reptile the source of so much art and wit. When the basket is made of some sea creature's carapace and is filled with assorted shells, the richness of the design is complete."

THE LACE-LEAF OF MADAGASCAR.

ONE of the novelties of the vegetable kingdom is the beautiful lace-leaf plant of Madagascar. It is a rare plant, because so difficult to obtain. It grows in many of the rivers of the island; but traveling through the tangled forests and swamps of Madagascar, as well as over steep hillsides, in a palanquin, occasionally having to risk the danger from deep holes and ugly-looking crocodiles in fording the streams, does not make botanizing very desirable; and so this lovely plant thrives all unseen, save by a few, more venturesome than others, who persevere in spite of all difficulties until they grasp the coveted treasure. Belonging to this class of successful persons is a missionary, who, accompanied by his young son, and borne in a palanquin by the natives, journeyed until he found the object of his search. Alice May, in the *St. Nicholas*, gives several interesting incidents of the trip, from which we quote a few paragraphs which will give you a good description of this lovely, delicate plant. Speaking of the missionary's diligent search for the lace-leaf, she says:—

"And now at last he had found it, bobbing backward and forward in a fantastic dance just above the eddying waters of the beautiful forest river. As soon as they recognized it, both Mr. Steedman and his son were on the ground in an instant, and bending eagerly above the clear stream. The water was so pure and limpid that every pebble could be counted, and in the cool, bright current they saw, to their delight, a perfect labyrinth of lace-work. Dozens of lace-leaves, green, gold, olive, and brown, were floating just beneath the surface of the water."

"O papa! did you ever see any thing so lovely?" said Harry, excitedly.

"Ah, my son," said Mr. Steedman, "this plant is both lovely and rare. See, the young leaves are light green and yellow; the older leaves are darker,—shades of green and olive. A few are even black, and all growing from the same root. How perfect is every leaf, in spite of its delicate texture! Some of those larger leaves must be ten or twelve inches long. The strong midrib in each serves as a support for the fragile threads forming the meshes on each side."

"Harry now plunged his hand into the lace-like web, half expecting it to dissolve in his grasp. But no! the wiry little yellow leaf, which he raised from the water, was perfect in form, and a gleam of sunlight, falling upon the shining meshes, transformed them into threads of glistening gold."

"He now discovered, as he examined them carefully, that the under surfaces of the leaves were glistening with little pearly bubbles of air."

"O papa!" he cried, joyously holding the glistening meshes aloft, "the lace-leaves are jeweled!"

"Yes, Harry, those diamond drops are made by the breathing of the plant." * * * *

With some difficulty they secured a plant, and Harry carefully placed the leaves of it in his herbarium, while his father packed the root, with its native soil, in a tin case, preparatory to sending it to the Botanical Society in London."

SOUNDS FROM A RAINBOW.

ONE of the most wonderful discoveries in science that has been made within the last year or two is the fact that a beam of light produces sound. A beam of sunlight is thrown through a lens on a glass vessel that contains lamp-black, colored silk, or worsted, or other substances. A disk having slits or openings cut in it is made to revolve swiftly in this beam of light, so as to cut it up, thus making alternate flashes of light and shadow. On putting the ear to the glass vessel, strange sounds are heard so long as the flashing beam is falling on the vessel. Recently a more wonderful discovery has been made. The beam of sunlight is made to pass through a prism, so as to produce what is called the solar spectrum, or rainbow. The disk is turned, and the colored light of the rainbow is made to break through it. Now, place the ear to the vessel containing the silk, wool, or other material. As the colored lights of the spectrum fall upon it, sounds will be given by different parts of the spectrum, and there will be silence in other parts. For instance, if the vessel contains red worsted and the green light flashes upon it, loud sounds will be given. Only feeble sounds will be heard when the red and blue points of the rainbow fall upon the vessel, and other colors make no sounds at all. Green silk gives sound best in red light. Every kind of material gives more or less sound in different colors, and utters no sound in others. The discovery is a strange one, and it is thought more wonderful things will come from it.—*Sel.*

The Sabbath-School.

FIRST SABBATH IN JULY.

IMPORTANT BIBLE SUBJECTS.

LESSON 11.—UNDER THE LAW.

[NOTE TO THE STUDENT.—Do not consider the lesson learned until you can give at least the substance of every text, with the correct reference for each. The references in black letters indicate those texts that should be committed to memory. A little diligent application each day will enable you to learn them, although this need not be considered a test of scholarship.]

1. WHAT exhortation does Paul give in Rom. 6:12?
2. What is sin? 1 John 3:4.
3. Then what does the apostle really warn us not to do?
4. Where is this exhortation repeated? Rom. 6:13, first part.
5. If people heed this exhortation, what will have no dominion over them? Rom. 6:14, first part.
6. If a person sins, what does he transgress?
7. Then if sin has no dominion over him, what does he keep?
8. What does Paul say to those who thus refrain from sinning? Rom. 6:14, last part.
9. Will those sin who are not under the law but under grace? Rom. 6:15.
10. Speaking to those who are not under the law, to what does Paul say they had formerly been subject? Rom. 6:17.
11. But now, being not under the law, from what are they free? Rom. 6:18.
12. Then what must be meant by being "under the law"?
13. What do those who are free from sin, or who, in other words, are not under the law? Rom. 6:18, last part.
14. And what is righteousness? Ps. 119:172.
15. Then if people are not under the law, what do they do?
16. Under what must they then necessarily be? Rom. 6:14, last part.
17. Why? John 15:4, 5; Heb. 4:14-16.

NOTES.

"SIN is the transgression of the law;" therefore when Paul warns us against letting sin reign over us, he warns us against transgressing the law. And since when a person sins, he transgresses the law, it follows that when sin has no dominion over him, he obeys the law.

In speaking to those who are not under the law, Paul says that they had formerly been the servants of sin (Rom. 6:18), but that now they are "made free from sin." Now if when they are not under the law, they are free from sin, it necessarily follows that when they were under the law, they were servants of sin. "Under the law," therefore, is equivalent to being in a state of sin. And so if people are not under the law, they keep the commandments. But the commandments can be kept only by the help of Christ; and this help is given by the grace of God (Heb. 4:16); therefore those who are not under the law are under grace.

ONLY A BROOK.

THAT brook is hurrying away, splashing, and dashing, one crystal ripple mirroring the next, rounding gracefully a ledge, lingering and hiding in a deep cool recess, then flowing out again to chatter away as it meets a bank of pebbles, and then finally disappearing beyond a clump of birches. A capitalist comes along, and sighs as he exclaims, "How much wasted power here!" If only guided, it might unite with another brook, and then what a hum of the spindles would be heard where bees and birds now make the only music!

"Only a boy!" we say. "Only a girl!" It is just youth with its thoughtless fun, its vivacity, its energy, its enthusiasm, its intense vitality. Save, develop, use these forces. Guide these brooks. No service to society and to the church is more important than that of the man or woman who saves mental and moral power, gathers it up, and directs it toward the best ends. No work is grander than that person's who encourages a boy's industry, who teaches him to be honest, manly, temperate, pure; who stimulates his sense of duty toward God, and helps him to be reverent, prayerful, loyal. Only a brook, but to how many useful wheels this now wasted power might be attached, and how effectively it might drive them!—S. S. Journal.

A SUCCESSFUL school should be an increasing school. Not so much that its number should increase, as that there should be new faces to be met, new hearts to be touched, new hands to be shaken. In every school there is the decreasing side. Scholars leave, because of removal, or because they think they have outgrown the school; and some are taken away by death. New scholars should be obtained to take their places. A large school is not necessarily a successful school.

It is in childhood that we find the germs of a man's true character, and commonly it is found that both his character and his course in life are given their supreme direction before he is seven years old.—H. C. Trumbull.

Our Scrap-Book.

BELIEVE AND TRUST.

BELIEVE and trust. Through stars and suns,
Through all occasions and events,
His wise paternal purpose runs;
The darkness of His providence
Is star-lit with benign intents.

—Atlantic.

NATURE'S FANCIES.

AN examination of Nature's handiwork reveals her wonderful architectural powers; that she not only builds grandly and beautifully, but as often curiously. We have already, at different times, given you specimens of her singular designing, and there is seemingly no end of such, prominent among which are the Giant's Causeway in Ireland, the Natural Bridge in Virginia, the profile of Washington in the White Mountains, etc. A writer in a recent exchange notices something which has the appearance "of a gigantic, glittering white cross, reposing on the somber slope of a distant mountain-peak," in crossing the Rocky Mountains at a certain point. He says "the cross is made by two intersecting gorges so deep that the snow never melts in them." And he further remarks:—

"In our Western country many a traveler has been startled by seeing, not far off, the peaks, turrets, and roofs of a walled city, such as was common in the Middle Ages in Europe. A closer inspection proves the supposed city to be nothing but a mighty mass of rock, so marked and scored as to appear the handiwork of man.

"Very recently an explorer in South America came upon a startling deception of somewhat the same order. While crossing the Andes, from Chili, his eye suddenly fell upon two series of towering waves, chasing each other over the mountains, and each moment threatening to break in an overwhelming flood over the whole country.

"An exclamation of alarm broke from his lips before he had time to assure himself of the impossibility of the waves' being real. An examination proved them to be strata of rock, upheaved and curled into their singular form during some frightful convulsion of Nature.

"The passage-way between these waves of stone called the Gorge Camataqui, is so twisted and grooved that the wind play most extraordinary pranks in it. When the wind is comparatively still elsewhere, it will often be whistling and shrieking furiously in there. At other times it will gather great clouds of dust and keep them whirling about over the gorge for days, completely obscuring the sun."

And so, had we space, we might enumerate, almost indefinitely, the strange, impressive outlines Nature assumes in her workmanship.

A NEWSPAPER OFFICE IN JAPAN.

THE office of the *Nichi-Nichi Shinbun*, a Japanese newspaper, is thus described: "The feature of the *Shinbun* office was its type case—for there was only one of body type. And such a type case! It is divided, for utility, into two sections, sloping toward an alley five feet wide. Each section is four feet wide by thirty feet long—four by sixty feet. There's a new case for you! This is divided into small compartments or boxes, into which the type is laid in regular piles, several piles in a box, with faces all toward the compositors, who are mostly boys, big and little. Each holds a wooden 'stick,' with brass rule. The type are all of a size; the 'stick' is not set to the measure of the column, which is twenty ems pica, but to about half the measure, it being the business of the other workmen to impose the lines in columns, take proof, and make up forms.

"The type-setting was equally curious. Armed with 'sticks' and rule and copy, the dozen compositors read the last in an earnest, sing-song way, each rushing to some box, far or near, for the needed letter, then back ten or twelve feet to the needed one; all are on the lively move, rushing and skipping to and fro, right and left, up and down, singing the copy, catching one letter here, another there, prancing and dodging, humming and skipping—a perfect maze of noise and confusion, yet out of confusion bringing printed order! It was a sight to be seen.

"How many different characters are there in this case, anyhow?" we asked our guide. Then our guide asked the printers, and none could answer better than say: "Nobody knows, sir. Nobody knows—many thousand." Later on we repeated the same question to a more intelligent person, who said: "At least fifty thousand." That will account for the remarkable size of the case, and the racing to and fro of the compositors.

"Just why they sing their copy all the while was not made so clear, other than the remark that it was the custom. Tokio monopolizes the Japan newspaper business, there being only one other point—Kofu—in Eastern Japan where newspapers are printed. The masses of the people are able to read in their own way, but comparatively few can grasp the full flow of Chinese characters. In point of illiteracy, the statistics place this nation at only seven per cent, or next to Bavaria, which is the lowest on the list."—*Pall Mall Gazette*.

THE CREATOR'S WATER-WORKS.

A LARGE proportion of this world is water, . . . which is the most wonderful element we know, and its wonders are as yet but dimly understood. Without its presence in our atmosphere, everything must be parched to aridity and desolation; hence some method is needful by which water can be constantly lifted up into the air. This can be done by the sun's drawing water directly from the oceans and seas; but the land needs water still more, and so the habitable earth is covered with the most marvelous system of water-works imaginable.

Says a writer in *Science for All*, "All plants give off their moisture from their leaves, even though this is invisible to the eye, just as our skin is always perspiring, though the sweat may not stand in drops. This can be seen if a plant is grown under a glass shade in such a manner that no evaporation can be given off by the earth or water in which it is grown. Nevertheless, in a few hours the inside of the glass will be dimmed by the moisture given off by the leaves, which has condensed on it. Calculations have been made as to the amount of water thus perspired by plants. A sunflower, only 3½ feet high,

with 5,616 square inches of surface exposed to the air, gives off every twelve hours twenty to thirty ounces avoirdupois of water in this form—which is more than a man does. Most of the common agricultural plants, such as wheat, peas, and clover, exhale during the five months of growth more than two hundred times their weight of water. The Cornelian cherry is still more remarkable. In the course of twenty-four hours it exhales water equal in weight to twice that of the whole shrub. Naturally, the degree of light, warmth, and dryness of the air affects the amount of fluid given off, as well as the age and texture of the leaf. However, a calculation of the amount of fluid perspired by an acre of cabbages may be curious. If the cabbages are planted in rows 18 inches apart and 18 inches from each other, it is estimated that in twelve hours no less than 10 tons, 4 cwt., 3 quarters, and 11 lbs. weight of water will have been insensibly perspired by their fleshy leaves.

It is estimated that a good-sized tree throws off eight barrels of water into the air in a day, and that an acre of forest throws up eight hundred barrels of water in twenty-four hours.

This water is drawn from the earth, and in it all the elements of nutrition are held in solution. It brings all these up into the tree or plant, and leaves them there, thus adding to its substance, while the pure, distilled water passes off to cool the air, condense again into rain and dew, and thus return to the earth once more.

Suppose this process continued the whole year round? Then in the winter the face of the earth would be buried in snow and ice. So in the autumn the evaporators, or leaves, drop off, the water-works cease to operate, and the machinery stands still till spring returns.

When a country is stripped of vegetation, then the water is evaporated directly from the soil; the clouds grow dry, the sands become arid and desert, the air is dry and hot, and death and desolation brood around.

Hence all plants and trees are ingeniously devised water-works, and from the forest trees to the smallest herbs and grasses, all operate to moisten and cool the air, fertilize the earth, and make it fit for the habitation of man. Be careful, then, how you cut down the Lord's water-works.—*The Little Christian*.

HOW THE OYSTER MAKES HIS SHELL.

NOT the least of the wonders of that marvelous book of nature is the formation of the oyster-shell. If you would take a pair of these shells in your hand to examine while reading the following description of their process of growth, as published in the May number of *Popular Science Monthly*, it might awaken in some minds a desire to know more of God's work of creation. The editor of this magazine thus writes:—

"Prof. Samuel Lockwood, in a recent lecture before the New York Microscopic Society, thus answers one who wishes to know how the oyster makes his shell. Beginning with the hinge-end, at a point of the shell above the hinge, he says, 'a small plate, or single scale, now represents each valve, and that is the first season's growth. The next season a new growth, or plate, shoots out from underneath the first one, just as shingles do. The oyster-men call these laps, or plates, "shoots;" and they claim that the number of shoots indicates the years of the oyster. They certainly do contain a record of the seasons, showing the slow-growing and the fast-growing seasons. . . . I have likened these shoots to shingles. Now, at the gable of a house, the shingles may be seen edgewise. So on the side of an oyster-shell is a series of lines. This is the edgewise view of the shoots, or season-growths.

"Another factor" in solving the age of the oyster "is the purple spot, or scar, in the interior of the shell. It is the place of attachment of the adductor muscle," that which serves to draw the valves together. This muscle was first attached "close up to the hinge. Had it stayed there until the shell had become old, how difficult would be the task of pulling the valves together!—the leverage to be overcome would be so great. [Here the boys and girls have an opportunity of philosophizing on the use of the lever]; for we must bear in mind the fact that at the hinge-end, the valves are held by this black ligament, which is, in life, elastic, swelling when the shell opens, and being compressed when the animal draws the valves together. So, with every year's growth, or elongation of the shell, the mollusk moves the place of attachment of the muscle onward, that is, in advance farther from the hinge. As it does so, it covers up with white nares [a substance with which some shells are lined] all the scars that are back of the one to which the muscle is now attached."

"To make the likeness of the oyster's shoots, or season-growths, with the shingles on a roof complete, 'it would be necessary for the bottom shingle on the roof to underlie the whole series, and reach even to the roof-tree, or ridge-pole. Then the second shingle from the gutter must in like manner underlie all the rest of the series; so of the third, and so on with the rest. In this way lie the shoots or laps of the oyster's shell. The last one deposited underlies them all, and every one terminates at the channel in the bill; thus this groove in the bill contains a series of transverse lines, each one marking a season, or a year.'" So that from the way the shell is made "we get really four factors for the solution of the question, 'How old is the oyster?'"

WHAT A SPIDER DID.

A SPIDER, as shown by means of actually weighing it and then confining in a cage, ate four times its weight for breakfast, nearly nine times its weight for dinner, thirteen times its weight for supper, finishing up with an ounce; and at 8 p. m., when released, ran off in search of food. At this rate, a man weighing 160 pounds would require the whole of a fat steer for breakfast, the dose repeated with the addition of a half-dozen well-fatted sheep for dinner, and two bullocks, eight sheep and four hogs for supper, and then as a lunch before going to his club banquet, he would indulge in about four barrels of fresh fish. *Ex.*

AN AFRICAN PRODIGY.

THE Hamburg Zoological garden has received a full-grown specimen of the *canis pictus*, or spotted wild dog of Africa. The creature is a native of western Transvaal, and in appearance, an astonishing hybrid between a hound and half a dozen other animals. He has the size and general form of a deerhound, the tail of a fox, the black snout of a hyena, and the spots and stripes of a leopard. His voice is a sort of coughing howl, and he paces his cage all day long with the restlessness of a captured wolf.—*Felix L. Oswald*.

The Sabbath-School.

SECOND SABBATH IN JULY.

IMPORTANT BIBLE SUBJECTS.

LESSON 12.—REDEEMED FROM UNDER THE LAW.

1. WHAT does Paul say of those who are led by the Spirit? Gal. 5:18.
2. Then what must be the condition of those who are not led by the Spirit?
3. What is directly contrary to the Spirit? Gal. 5:17.
4. Since those who are in opposition to the Spirit are under the law, and the flesh is also opposed to the Spirit, to what is being in the flesh equivalent?—*To being under the law.*
5. What are the works of the flesh? Gal. 5:19-21.
6. What are the fruits of the Spirit? Gal. 5:22, 23.
7. With what are the fruits of the Spirit in harmony? Gal. 5:23.
8. Then since the flesh and the Spirit are contrary to each other, of what must the works of the flesh be a transgression?
9. And since following the flesh is being "under the law," what is it to be under the law?
10. In another place what does Paul say of us when we were "children"? Gal. 4:3.
11. To what were we in bondage? Gal. 4:3.
12. To what does he say the Galatians were desirous of returning? Gal. 4:9.
13. While in that state of bondage, what had they done? Gal. 4:8.
14. Then what is meant by the elements of the world? Eph. 2:1, 2.
15. What did God do in the fullness of time? Gal. 4:4.
16. For what purpose was his Son sent? Gal. 4:5.
17. In order to redeem those under the law, how was Christ made? Gal. 4:4.
18. What does Paul elsewhere say Christ was made for us? 2 Cor. 5:21.
19. Why was he made to be sin for us? 2 Cor. 5:21, last part.
20. Being redeemed from under the law, what do we receive? Gal. 4:5.
21. Who alone are the sons of God? Rom. 8:14.
22. And with what are their works in harmony? Gal. 5:22, 23.
23. What is said of such? Rom. 8:1.

THE PRAYER OF INDOLENCE.

A TEACHER was heard to pray earnestly in a teachers' meeting that the Lord would teach him the next day's lesson, enlighten his mind, fill his heart with zeal, and thoroughly fit him for his class duties, in order that he should be able to bring the knowledge of the truth to the souls of his scholars. The prayer in itself was one to which every teacher could say, Amen. And yet, in the case of him who offered it, it was felt by some to be a waste of time and breath; for that teacher was one of those who habitually neglect the study of their lessons, and otherwise fail of preparation for their class work. He never visited his scholars at their homes. He took no more pains to become acquainted with his scholars than with his lesson. Why should his prayer be heard? It was the prayer of indolence, not of living, acting faith. Prayer is absolutely essential to a teacher's preparation; but hard work and faithful study are an essential evidence of that faith which makes prayer effectual.—*Scl.*

YOUNG Christians have many experiences of trial and perplexity in which a wise and sympathetic teacher can give invaluable help. Duties are hard, difficult questions continually arise, there are struggles with temper and tongue, old nature still is too strong for young discipleship, and thus the week-day life of these youthful Christians is in much tribulation. They need a good friend in these early days, just as much as they need lessons and sermons. The teacher who is alive to the full importance and responsibility of his work as a guide of young souls will make himself the confidential friend of each pupil, and will strive not only to teach the lesson well, but will also seek to be helpful in the personal life of each scholar.

TRUE fidelity involves constancy. Constancy demands continuous endeavor in the line of duty. An occasionally spouting geyser may be an instructive and entertaining phenomenon, but no one wants to depend on such a spasmodic source for his domestic water supply. A teacher may be an instructive and entertaining rhetorical phenomenon once a week; but no thirsty scholar wants his supply of living water restricted to times and seasons. A teacher ought to be his scholar's friend all the week through, and so, whether present or absent, he can be his scholar's teacher all the week through. A teacher who has no week-day interest in his scholars' week-days, will not be likely to win their Sabbath interest in his Sabbaths. Until a teacher can compel his scholars' week-day regard, he cannot expect their full Sabbath regard. Spiritual thirst is no more spasmodically intermittent than bodily thirst. The successful teacher is not the showman at the geyser, but the cup-man at the spring.—*S. S. Times.*

Our Scrap-Book.

IF WE HAD BUT A DAY.

WE should fill the hour with sweetest things,
If we had but a day;
We should drink alone at the purest springs,
In our upward way;
We should love with a lifetime's love in an hour,
If the hours were few;
We should rest, not for dreams, but for fresher power
To be and to do.

RESURRECTING THE SPHINX.

THE wonderful monument known as the sphinx, which has attracted the gaze of visitors for ages on account of its great size and strange shape, has been, as you know, gradually buried by the drifting sands, until now only the head is exposed to view. Neighboring cities which have been buried in this way have sometimes been resurrected, and so now it is reported that an effort will be made to remove the accumulated debris from this huge image, thus giving the traveler a chance to see for himself what before he only knew of it from the description given by those persons who saw it before the earth was allowed to gather about it.

Other sphinxes have been found in Egypt, and some in Assyria, Babylonia, and Phœnicia, but none others of any great size. This most remarkable one was carved from the rock, masonry sometimes being added to make the form complete. One writer has given its length as more than one hundred and seventy feet, and its height over fifty feet. The body is in the form of a lion, with wings attached to its sides, and it has the head of a man, with a face thirty feet long and fourteen feet broad. Its paws are said to be fifty feet long.

A writer in the *London Daily Telegraph* says, "No wonder that the Arabs know this mighty monster as Abou'l Hol (the father of terrors); or that the Greeks, to whom its symbolism was a mystery, named it the sphinx," the word meaning the "strangler," the "throttler."

The following paragraph from the same source gives one some idea of the great size of the sphinx:—

"Between the paws was erected a temple thirty-five feet long, while in front of the giant's breast was a small sanctuary, entered by a door-way divided into passages by a reclining lion. At the far end of the sanctuary was the tablet of Thothmes IV., and on either side other tablets covered with sculptured bas-reliefs and hieroglyphics, while in the court of the temple was an altar, which, with some fragments of the sphinx, is now in the British Museum. Here, for ages, troops of priests officiated. Upon the stately flight of steps, so arranged that the lordly proportions of the sphinx might be seen to advantage, endless troops of worshippers ascended, or prostrated themselves as the smoke of the burned sacrifice curled over the then fertile valley. Though the slabs with the dream of Thothmes and prayer of the sphinx to keep his statue clear of the sand which has since then overwhelmed it are no longer there, the outline of the temple and the flight of steps will be exposed to view when the sand is removed."

AN EXTINCT ANIMAL.

A FEW months ago there were discovered in Geneva, N. Y., the bones of an extinct animal—the mastodon. And we hear that Prof. Hitchcock, of Amherst College, is now there with a large force of men, digging for the bones of the animal. Fifty-four bones have been found, including a tusk eight feet long and two feet in circumference. Prof. Hitchcock expects to find all the bones and to mount them for the Amherst College Museum. The skeleton, when complete, will be twenty-five feet long and fifteen feet high.

The mastodon is a genus of extinct quadrupeds, the remains of which in a fossil state show that it was a pachydermatous animal allied to the elephant. It has the vaulted and cellular skull of the elephant with large tusks in the upper jaw, and a heavy form. From the character of the nasal bones and the shortness of the head and neck it has been concluded that it had a trunk.

Some of these animals were natives of the Old World, but by far the largest in size have been found on our continent. The skeleton of one, which is termed the *Mastodon giganteus*, has been exhibited in London under the name of the Missouri Leviathan. Of this particular one it is said, "About 1840 Mr. Koch procured a rich collection of mastodon bones from the bank of the Missouri and put together a nondescript animal, when the so-called Missouri drew crowds of visitors in New York and London, until from the mass of bones of several animals a tolerably complete skeleton was finally made by Prof. Owen." It is now in the British Museum, and is thought to exceed in its dimensions the largest elephant, except, perhaps, the late Jumbo.

In some parts of North America the fossil remains of this stupendous animal are abundant, particularly in the saline morasses popularly termed the Big-bone Lick, in the northern part of Kentucky. There are, however, no traces within the period of tradition or history of the existence of these animals as a living genus. Why and how they perished, is not known. "It is worthy of remark," says Maunders, "that the skeletons seem to have been unmoved since the death of the animal; some, in fact, which were found near the banks of the great rivers, appear in a vertical position as if they had sunk down, or been imbedded in the mud."

A few remains of the mastodon were discovered in North America as early as 1705, but not until 1801 was any thing like a complete skeleton obtained, when a tolerably perfect one was procured from the morasses of Orange County, N. Y. This was carried to London in 1802, but was soon returned to this country, where it occupied a prominent place in Pearl's Museum, Philadelphia, until 1849 or 1850, when it suddenly disappeared. It is said to have been imperfect, wanting a considerable part of the head, some vertebrae, ribs, and bones of the limbs. Specimens have been found in New York, New Jersey, Kentucky, Alabama, Missouri, Kansas, Texas, and other States. The food of

the mastodon is thought to have been entirely vegetable; and it doubtless resorted to marshy and boggy places like other proboscideans in search of plants, where it was often mired in the very place where its remains have been extracted during the present century.

Among the many curious traditions which were credited by the native Indians concerning this gigantic animal and its destruction is the following: "The Shawnee Indians believed that with these immense quadrupeds there existed men of proportionate dimensions, and that the Great Being destroyed both with thunder-bolts. The Indians of Virginia state that as a troop of these terrible creatures were destroying the deer, bison, and other animals created for their use, the Great Man slew them all with his thunder except the big bull, which, nothing daunted, presented his enormous forehead to the bolts and shook them off as they fell, till, at last, being wounded in the side, he fled toward the great lakes, where he is to this day.—*S. S. Classmate.*

SOMETHING ABOUT SALMON.

VERY young salmon cannot live in salt water, this is why the mother ascends the streams in the spring to deposit her eggs. By her determined effort to reach the head of the stream, it would seem that she understood the danger of the young fishes' floating out to sea. You were instructed a few months ago how they will jump falls of considerable height. This they do in their attempt to secure a safe place to spawn, or deposit their eggs. A writer in *Harper's Young People* says of the habits of the salmon:—

"It is now customary to place fish-stairs where there is a water-fall or a dam too high for the salmon to mount. These consist of a series of steps made of wood or stone, which divide the height into a succession of small falls. The salmon soon learn to leap from one step to another, and in this way they reach the top without difficulty.

"Salmon, it is said, have a leader on these journeys, and follow him in regular order. Having arrived at some suitable place, they hollow out nests in the bottom of the stream, and deposit their eggs, covering them with gravel, and then taking no further care of them.

"These fishes eat little or nothing while in fresh water, and they reach the spawning-ground bruised and exhausted by the hardships they have endured. They therefore rest awhile after the spawning process, which occupies eight or ten days, and then eagerly return to sea.

"The eggs left under the gravel finally hatch out, and the young fishes work their way slowly down the river, to make their first visit to the sea. These fishes increase but little in size while in fresh water, whereas in the ocean the rapidity of their growth is almost incredible."

INTERESTING FACTS ABOUT LEAVES.

IN the article entitled "The Creator's Water-Works," in the last INSTRUCTOR, you remember it was stated that the leaves of plants act as evaporators, carrying moisture to the atmosphere, cooling and making it healthful, and that it is condensed into dew and rain to again water the earth. Also it was stated that in regions of country where there are no trees or other growing vegetation, there being no leaf evaporators, the ground soon becomes dry, and the atmosphere hot and unhealthful. But the leaves have still other uses, as you may learn in the following quotation from an exchange:—

"As is well known, a tree cannot grow without leaves. These are put forth every year, and are a contrivance for vastly increasing the surface. An oak tree of good size exposes several acres of surface to the air during the growing season. It has been estimated that the Washington elm at Cambridge, Mass., not a very large tree, exposed about five acres of foliage, if we include both sides of the leaves. Leaves are more nearly comparable to stomachs than lungs. A leaf is a laboratory for assimilating or manufacturing raw materials into plant fabric. The cellular structure of the leaves, wood, and bark of a tree is a complicated subject to treat in a popular way. It requires a vast surface of leaves to do a little work. By counting the leaves on a seedling oak, and estimating the surface of both sides of each, we can see how many inches are needed to build up the roots and stem for the first year. After the first year the old stem of the oak bears no leaves. It is dependent on the leaves of the branches, or its children, for support.

A tree is a sort of community, each part having its own duties to perform. The root hair takes up most of the nourishment. The young roots take this to the larger ones, and they in turn, like the branches of a river, pour the flood of crude sap into the trunk, which conveys it to the leaves. The assimilated or digested sap passes from the leaves to all growing parts of the plant, and a deposit is made where most needed. If a branch is much exposed to the winds, the base of it has a certain support or certain amount of nourishment. So with the trunk of a tree. If the base of a branch or the main trunk is much exposed to the winds and storms, a much thicker deposit of food is made there. The winds give a tree exercise, which seems good to help make it strong. Our toughest wood comes from trees growing in exposed places. The limbs of a tree are all the time striving with each other to see which shall have the most room and the most sunshine. While some perish in the attempt, or meet with only very indifferent success, the strongest of the strong buds survive."

THE GLACIER OF ALASKA.

AN exchange, describing one of the great glaciers of Alaska, represents it as "moving at the rate of a quarter of a mile per annum." And further: "The front presents a wall of ice five hundred feet in thickness; its breadth varies from three to ten miles, and its length is about a hundred and fifty miles. Almost every quarter of an hour hundreds of tons of ice in large blocks fall into the sea, which they agitate in a most violent manner. The waves are said to be such as to toss the largest vessels which approach the glacier, as if they were small boats.

"The ice is extremely pure and dazzling to the eye; it has tints of the lightest blue as well as of the deepest indigo. The top is very rough and broken, forming small hills and even chains of mountains in miniature. This immense mass of ice, said to be more than an average of a thousand feet thick, advances daily toward the sea. It is not necessary for Americans to cross the Atlantic to see glaciers; they have them at home, and grand enough for the wonder seeker."

The Sabbath-School.

THIRD SABBATH IN JULY.

IMPORTANT BIBLE SUBJECTS.

LESSON 13.—REDEEMED FROM THE CURSE OF THE LAW.

1. FROM what has Christ redeemed us? Gal. 3:13, first part.
2. What is the keeping of the commandments? 1 John 5:3.
3. If keeping the commandments is love, can it be also the curse of which Paul speaks?
4. Upon whom does the curse of the law fall? Gal. 3:10; Jer. 11:3, 4.
5. What is the curse for disobedience? Rom. 6:23.
6. How many people have been perfectly obedient? Rom. 3:9, 10, 23.
7. Then upon how many does the curse of the law fall? Rom. 3:19.
8. How many, consequently, stand in need of redemption?
9. How has Christ redeemed us from the curse of the law? Gal. 3:13.
10. How was he made a curse for us? Gal. 3:13.
11. What does this prove the curse of the law to be?
12. Having suffered the curse of the law, death, what does he give to those who believe in him? John 3:16.
13. For what is the blessing of life promised? Gal. 3:12; Matt. 19:17.
14. And what is inseparably connected with faith? Rom. 3:31; Rev. 14:12.
15. How only is it possible for us to keep the commandments, and thus gain the blessing of life? John 15:4, 5; Heb. 11:6.

SOWERS AND REAPERS.

Does it ever occur to Sabbath-school teachers that, in the prosecution of the Lord's work, there are some to sow the seed, and some to reap the harvests that spring from the seed? And have they ever formed any just idea of the comparative importance of the two works? It is to be feared that, because the teacher's part is to scatter the little seeds, he is often tempted to undervalue the importance of his work, and to perform it without due care, or in a half-desponding mood, because no higher work is intrusted to him.

The late Henry Moorhouse, the English evangelist, in his little work on "Ruth the Moabitess," says a few words that may rouse teachers to a sense of the true importance of their work, and send them to it with a heart full of gratitude that they have the privilege to be sowers of the seed; and of anxiety that they may do their work well.

"I once lived next door to a farmer, and I used to see him when he went out to sow his fields. I said to him one day:—

"Why do you do that yourself?"

"Because," he said, "I have not got a servant that I can trust to sow. I had one once that I could trust, but he has left me. I must have one to sow the seed in whom I can put confidence."

"I have seen that very farmer go and hire the first Irish laborer that came along, to put in the sickle and reap. Who did the most important work? Not the man that reaped; but the man that sowed. So you, perhaps, who are toiling and laboring for the Lord Jesus Christ—you never see a soul won to the Saviour. Thank God for the great honor he is conferring upon you in making you a sower, even if he makes somebody else the reaper. 'One soweth and another reapeth,' but 'neither is he that planteth anything, neither he that watereth; but God that giveth the increase' (John 4:37; 1 Cor. 3:7). Sow the seed beside all waters, and, by and by, both sower and reaper shall rejoice together. When the Master winnoweth the barley, we all shall get the praise that is due to us."—*The Baptist Teacher*.

The Christian, of London, tells a story worth remembering, of what can be done by smiles that come from the heart. A lady of position and property, anxious about her neighbors, provided religious services for them. She was very deaf—could scarcely hear at all. On one occasion one of her preachers managed to make her understand him, and at the close of their conversation asked, "But what part do you take in the work?" "Oh," she replied, "I smile them in, and I smile them out!" Very soon the preacher saw the result of her generous, loving sympathy in a multitude of broad-shouldered, hard-fisted men, who entered the place of worship, delighted to get a smile from her as she used to stand in the door-way to receive them. Many more of those who now neglect the church and Sabbath-school would be found there if Christians would "smile them in and smile them out."

THERE should be a bond of sympathy between teacher and scholar—a good knowledge of each other, and an influence on the part of the teacher—that will remain as a felt-power of the scholar for all time. "I was influenced more than I was taught," has been the testimony of many good men, who, looking back to their Sabbath-school days, recall their teachers to memory.

Our Scrap-Book.

A LESSON FROM THE VINE.

HAVE you seen the little tendrils
Of the closely clinging vine,
How they seek for something stronger
Than themselves, whereon to twine?
Reaching out and always upward,
Getting farther from the ground,
They climb their leafy ladders
To the very topmost round.

So let your best endeavor
To noble heights aspire;
Let faith be like the tendrils
Whereby you rise the higher;
Leave sin's alluring pleasure
Where the vine has left the sod.
Beneath you is the darkness,
Above the light of God.

—S. S. Advocate.

A HUGE KITE.

KITE-SAILING is a very pleasing pastime for boys at certain seasons of the year; and who is the boy that does not delight in making a kite that will soar very high heavenward?

Perhaps no people enjoy this amusement any better than the Chinese, who set apart a certain day in September, which they call the "Ascending on High Day," when both the men and boys give themselves up to kite-flying. Their kites present a very attractive appearance; for they pattern them after men, beasts, birds, and fishes, and paint them in gay colors, which make them showy even in the distance. Some of them measure forty and fifty feet in length. This holiday ends up with a great feast.

If grown-up men do not thus amuse themselves in America, one would suppose that at least the big-grown boys sometimes participate in the sport, and lend a hand in the manufacture of some of the enormous kites which soar in American skies. One of these, perhaps as large as any our young friends have ever seen, is thus described in *Golden Days*:

"One of the largest kites that ever soared in American air was given to the breeze at New Haven, Conn., on the 28th of March, 1884. The kite was twelve feet wide, and fifteen feet long. Its ballast was a tail of manilla rope, seventy-five feet long and weighing thirty-eight pounds. On the day of the trial-trip a strong breeze was blowing. After several vain attempts to send the kite aloft, it caught the breeze and went upward like a huge monster on wide-spread wings. Two men were required to run the reel. The kite sailed away until one thousand yards of clothes-line had been paid out. It was fortunate that a reel had been provided, for if those present had depended on their unassisted strength, the kite would have escaped. When it reached the extent of the rope, the strain was so great that forty men had hard work to pull it down. Aloft in the air, it looked to be less than half its real size. Thousands watched it soar above the city of New Haven, and many boys dreamed of kites when they went to bed that night."

A ROYAL MUMMY.

MODERN researches in Egypt result in bringing to light many objects of interest, and one of them is a royal mummy, recently on exhibition in Mr. Brookwaller's "Art Collection," and obtained by Mr. B. "from Brusch Bey, director general of the Boolak Museum, Cairo, Egypt." A late journal gives the following description of it by one who has seen it:—

"The sarcophagus is hewn out of sycamore wood, and is supposed to be over 2,500 years old. The lid, forming one half of the coffin, is profusely decorated with painted figures of men, alligators, dogs, cats, and snakes. The colors are very various and well preserved. At the head is a painted face that is believed to be a picture of the one within. Taking off the lid, we find a figure wrapped from head to foot in over one hundred thicknesses of cloth. At New York, Mr. Brookwaller had one-half of the embalming cloth of flax removed, to show the features; the other half remains as wrapped years ago. Upon taking the cloths from the face, they found a mask highly gilded and just like the face painted on the outside of the sarcophagus. Around the neck they found a large band of beads, also figures and scarabeus set in gold. These last two are a sort of bug that is supposed to watch over the body while the soul is absent. The features are all well preserved; the teeth are regular, small, and white. The hands, instead of being folded after the modern fashion, are crossed reaching almost to the shoulder. The finger nails are perfectly plain; but there is no hair to be seen. The body is that of a royal princess. It is five feet two inches in length. This is a peculiar fact, that the foot is fully twelve inches long, about one-fifth the length of the body, corresponding remarkably with the length of the feet found on the base-reliefs of antiquity and paintings on the sarcophagus. This might be used as evidence that mankind at one time had larger feet than at present. The ankle was correspondingly large. This royal mummy is certainly a remarkable object to see and to study."

SOME CRAWLING LEAVES.

WHEN Australia was first discovered by the English, as many strange stories were told about the wonderful things to be found there as we used to hear in the early days of California. Among other things it was said that the leaves of a certain tree had a habit of descending from their proper place and walking along the ground.

A party of English sailors had left their ship to roam along the coast and "see what they could see." They were resting under a tree, lying on their backs probably, and naturally gazing upward, when a sudden breeze shook down a number of leaves, which turned somersaults in the air, after the manner of leaves generally, and then floated to the ground. The sailors were surprised at this shower, because it was not the fall of the year, but midsummer, and these falling leaves looked fresh and green. It was strange to see leaves deserting the tree without any sort of reason; but this was nothing to what followed.

After a short rest, these able-bodied leaves began crawling along on the ground toward the trunk of the tree from which they came, and the amazed sailors started up in terror. They probably knew from experience that people who came in contact with the ground may also expect to come in contact with various crawling insects, but walking leaves were something altogether out of the common way; and they took to their heels at once, and lost no time in getting on board the vessel. The land was certainly bewitched, and one of the men said, in relating their adventure, that he expected every minute to see the trees step out and dance a regular jig.

Fortunately this singular phenomenon has been fully explained by later travelers who were not too much frightened to stop and examine the matter. It was discovered that these queer leaves are really insects that live upon the trees, and are of the same color as the foliage. They have very thin, flat bodies, and their wings are like large leaves. When anything disturbs them, as a breeze, for instance—they fold their legs away under their bodies, and then the leaf-like shape, with stem and all, is complete.

Not only are they of a bright green in the summer, like the foliage of the trees at that time, but they actually change when the leaves do to the dull brown produced by frost. Another peculiarity of these leaf-insects is that, although they have a generous supply of wings, they seldom use them, but when they have been shaken to the ground, after lying there for a few minutes as if they were really leaves, they crawl toward the tree, and ascend the trunk without seeming to know that they have the power of getting back to their quarters in a much quicker and easier way.—*Harper's Young People*.

WHERE DID HE LIVE?

FOR the more systematic management of that great city of London, wherein are so many persons, the city necessarily has to be divided up into numerous districts or divisions; and we have the authority of one who has resided there, that the arrangement by which the districts are regulated sometimes seem so complicated that one is puzzled to tell to what local division he does belong. This is forcibly illustrated in a letter from a householder to a London paper. We quote it, from an exchange, as follows:—

The writer asks, "Where do I live? Can any one tell me? I cannot, for reasons as follows: The deeds of my house state at Upper Tooting. The postal authorities say at Balham. The taxing masters say Clapham. The rating people say Battersea. The local directory says Wimbledon and Putney. If I pay my taxes, I must go to Clapham. If I pay the gas, I must go to Bermondsey. If I pay the water-rate, I must do so at Kingston-on-Thames. To pay local rates, I must go to Battersea. If I give a vote for a member of Parliament, I must vote for Clapham division. If I look out in front of the house, Wandsworth Common is two hundred yards in front of me, and Battersea two miles beyond that. If I look out at the back of the house, Upper Tooting Park is only fifty yards from me. If I walk to the end of my road, I am then in the parish of Wandsworth. If I go to the other end of the road, I am in Streatham. If I cross over the road, I am in Battersea. If I get over my garden wall, I can sit on a post with a part of my body in three or four parishes at the same moment."

A GEOGRAPHICAL CLOCK.

AMONG new school appliances is a clock designed to show the time at any given moment in all parts of the world. The clock does not differ in mechanism from any other clock, the novel feature being the arrangement of the figures on the dials. Two dials are used, one over the other, the smaller being in the form of a ring, and moving over the other dial in unison with the hour-hand. The larger dial covers the whole clock-face, and is marked with four systems of figures. The first system, in Arabic numerals, stands next to the edge of the dial, and begins at the beginning of the universal day, or midnight. The first number is at the left of the lowest point of the dial, and the others are arranged at regular intervals around the dial to 24 o'clock, or midnight. Midday, or 12 o'clock, is at the top of the dial, all the numbers to the left being marked A. M., and all to the right, or from 13 to 24 o'clock, being marked P. M. Within the circle of figures is a circle of Roman numerals, beginning also at the same point, or midnight, and marking XII. figures to midday, and then XII. more till midnight. Within this circle is another circle of 60 figures and points to mark the minutes for the hour-hand. Within this circle is also another system of figures giving 15 degrees of longitude, or one hour, and divided into sixty parts. The second dial moves over the larger dial with the hour-hand, and is marked with the degrees of longitude east or west in groups of 15 degrees. The hour-hand is in two parts, a single hand pointing to the minutes, and a series of 15 minor hands that move with it. Supposing the clock is to be used at some point, say on the 75th degree west of Greenwich, the smaller dial is adjusted so that the figure 75 is opposite the hour-hand. The dial now moves with the hour-hand, and to find the hour at any degree of longitude it is only necessary to find the hour opposite that degree. The minute-hand will also give the time before or after that hour. This dial system explains a number of interesting geographical and time questions, and will, no doubt, prove of value in school.—*The Century Magazine*.

A CORRESPONDENT of *The Scientific American* says, in explanation of the many smooth tracks seen upon the ocean when no vessels are in sight from which oil or grease could have been thrown to cause them, that certain fish, such as the menhaden, will exude oil when bitten by other fish. This oil, rising to the surface, causes the smooth streaks, and fishermen are in the habit of watching for these "slicks," as they call them, as indicating the presence of schools of large fish feeding upon smaller ones.

THE beauty and fragrance of flowers adds not a little to the pleasure of the table hour. A large, fragrant bouquet takes the place of an extra dish. And nothing is so cheap as flowers. During a considerable part of the year, they cost absolutely nothing. It is the sweetest pleasure to grow them. And it is surprising how cheaply a small conservatory may be managed.

MELONS were first called cantaloupes from being cultivated at Canteluppi, a villa near Rome, where they had been introduced from Armenia, by missionaries. The name is said to be still in use in some parts of Europe for a class of deeply-ribbed, yellow-fleshed melons. In this country it is applied to different kinds of melons in different localities.

The Sabbath-School.

FOURTH SABBATH IN JULY.

IMPORTANT BIBLE SUBJECTS.

LESSON 14.—THE LAW THAT WAS ABOLISHED, AND THE LAW OF GOD.

1. WHAT has Christ abolished in his flesh? Eph. 2:15.
2. What is love? 1 John 5:3.
3. Can the same thing be both love and enmity?
4. In another place what testimony did Paul give concerning the law of God? Rom. 7:12.
5. How did he feel towards it? Rom. 7:22.
6. Then can it be the law of God, or ten commandments, that is spoken of as "the enmity" in Eph. 2:15?
7. What did God speak to the people from Sinai? Deut. 4:12, 13.
8. Did he speak any other words in the hearing of the people, besides the ten commandments? Deut. 5:22.
9. When the Lord had finished speaking the ten commandments, what did the people say? Ex. 20:19.
10. What did Moses and the people then do? Ex. 20:21.
11. How did the Lord, after he had given the ten commandments, give other instruction to the people? Neh. 9:14, last part.
12. Where do we find some of the things which the Lord gave through Moses? Exodus, chapters 25-30.
13. Is there any part of the instruction that has reference to flesh? Lev. 4:6; 25-30; 10:16-18.
14. Did these offerings really take away sin? Heb. 10:4.
15. Who only can really take away sin? John 1:29; Heb. 9:26.
16. How did Christ bear our sins? 1 Peter 2:24.
17. Of what must we be partakers in order to have eternal life? John 6:53, 54.
18. Were the sacrifices to be continued after Christ suffered? Heb. 10:4, 5.
19. Then how are they done away?—Christ abolished them "in his flesh;" that is, they found their fulfillment in the body of Christ.
20. Were these ordinances a cause of enmity between the Jews and the Gentiles? Acts 11:2, 3.
21. After Christ, did this cause of enmity exist? Gal. 6:15.
22. Through Christ what union was effected? Eph. 2:16-18.
23. Are those thus brought together planted on a new foundation? Eph. 2:19, 20.
24. After circumcision and the ceremonies connected with it had passed away, what still remained in full force? 1 Cor. 7:19.

A SERIOUS QUESTION.

WE want to ask a serious question. How do our teachers deal with the children, or the fellow-teachers, who fall into sin? Our question applies chiefly, of course, to our young men and young women. We all know how again and again our hearts are wrung by the failure of those who were the subjects of high hope. But how do we act toward them? Do we at once give them up? Do we push them further on in their evil way by our neglect? Do we suspect all signs of penitence as fatal? Do we settle it in our own minds that one slip is a fall, and one stumble a ruin? Or do we pursue them into their evil ways? and solemnly vow before God that we will not rest until we have won them back? Do we watch for them? Do we fan the slightest spark of returning life? Do they feel that they cannot get away from us? And are they encouraged to try again for the pure and right, because they know that we shall stand beside them to help them? Fellow-teachers, make the downward road nearly impossible for your scholars, because your love cannot wear out, but spends itself in watchings, and persuadings, and helpings. After Christ, and for him, let us "seek and save the lost."—*Sunday-School Chronicle.*

THE TEACHER'S AUTHORITY.

To many little children, the teacher's word is final authority. The primary teacher can hardly realize how completely she is enthroned in the confidence of the child. One teacher of our acquaintance one day taught her class that Jesus was born in the City of David, omitting to mention that it was Bethlehem of Judea. After Freddie came home, his father asked him what the lesson was about. "About Jesus and where he was born," said Freddie. His father read to him about the birth of Jesus. "One thing, papa," said Freddie, "you said wrong. Jesus was n't born in Bethlehem." "Why, yes, Freddie, here it is, right here in the Bible." "I don't care," said Freddie, "my teacher said he was born in the City of David; and I guess she knows." Nent Sabbath, the teacher reviewed the last lesson, and said, in passing: "Jesus was born in Bethlehem of Judea, sometimes called the City of David." Just here, Freddie broke out: "Then the Bible was right, after all."

If your cup seems too bitter, if your burden seems too heavy, be sure that it is the wounded hand that is holding the cup, and that it is He who carries the cross that is carrying the burden.

Our Scrap-Book.

MAN'S PLEA.

MAN'S plea to man is, that he never more
Will beg, and that he never begged before;
Man's plea to God is, that he did obtain
A former snit, and therefore sues again;
How good a God we serve, that, when we sue,
Makes his old gifts the examples of his new.

—Quarles.

THOSE CLEVER GREEKS.

PERHAPS our readers do not know what care has to be exercised in the construction of a column or building to give it the right appearance to the human eye. By giving attention to what Arlo Bates says, in the *October St. Nicholas*, as printed below, you will become satisfied that the architect has to calculate with great nicety to give beauty and perfectness to his workmanship; and in examining the letter s, as he directs, you will see what a great difference in appearance a slight change makes. The following quotation will afford entertainment and instruction to the reader:—

"If you turn a book upside down and look at the letters, every s will seem much smaller at the bottom than at the top, although, when the book is properly held, both halves appear the same size to the eye.

"The upper part of the type that prints the letter s is made smaller than the lower half to correct the fault of the eye, which always slightly exaggerates the former. When the letter is turned over, this same trick of the sight makes the difference seem greater than it really is; and, of course, were it of the same width all the way, it would still look uneven.

"In greater matters, the false report of the eye is greater. If a tapering monument, like that on Bunker Hill or like the obelisk in Central Park, were made with perfectly straight sides, it would look to us—for, you see, we really cannot trust our own eyes—as if it were hollowed in a little; or, as we should say in more scientific language, its sides would appear concave.

"Those clever Greeks, who did so many marvelous things in art, thought all this out, and made their architecture upon principles so subtle and so comprehensive that we have never been able to improve on them since. They found that their beautiful Doric columns, if made with straight sides, had the concave effect of which I have spoken; and so, with the most delicate art in the world, they made the pillar swell a little at the middle, and then it appeared exactly right.

"This swelling of the column at its middle was called entasis. Of course it had to be calculated with the greatest nicety, and was actually so very slight that it can only be detected by delicate measurements; but it added greatly to the beauty of the columns and to their effectiveness.

"Then the lines which were to look horizontal had to receive attention. If you look at a long, perfectly level line, as the edge of a roof for instance, it has the appearance of sagging toward the middle. The Greek architect corrected this fault by making his lines rise a little. The front of the Parthenon, at Athens, is one hundred and one feet three and a half inches long, and, in this, the rise from the horizontal is about two and one-eighth inches. In other words, there is a curvature upward that makes it a little more than two inches higher in the center than at the ends, and the effect of this swelling upward is to make the lines appear level. Indeed, this same Parthenon—the most beautiful building in the world—when delicately and carefully measured, was found to be everywhere made a little incorrect, so that it may appear right, which is certainly what may be called an architectural paradox. The graceful columns, which seem to stand so straight, are made to lean inward a little, since, if they were perfectly true and plumb, they would have the effect of leaning outward. The pillars at the corners slant inward more than the others, and everywhere the corners are made to look square by being in truth a little broader angled, and lines are curved in order that they shall appear straight to the eye."

PRIMITIVE TIME-PIECES.

THE following interesting paragraphs on primitive time-pieces we quote from an article on "Primitive Clocks" by Frederic G. Mather, in *Popular Science Monthly*:—

"The story is that King Alfred had no better way to tell the time than by burning twelve candles, each of which lasted two hours; and, when all the twelve were gone, another day had passed. Long before the time of Alfred, and long before the time of Christ, the shadow of the sun told the hour of the day, by means of a sun-dial. The old Chaldeans so placed a hollow hemisphere, with a bead in the center, that the shadow of the bead on the inner surface told the hour of the day. Other kinds of dials were afterward made with a tablet of wood or straight piece of metal. On the tablets were marked the different hours. When the shadow came to the mark ix., it was nine o'clock in the morning. The dial was sometimes placed near the ground, or in towers or buildings.

"But the dial could be used only in the daytime; and even then, it was worthless when the sun was covered with clouds. In order to measure the hours of the night as well as the hours of the day, the Greeks and Romans used the clepsydra, which means, 'The water steals away.' A large jar was filled with water, and a hole was made in the bottom through which the water could run. The glass, in those days, was not transparent. No one could see from the outside how much water had escaped. So there were made, on the inside, certain marks that told the hours as the water ran out; or else a stick with notches in the edge was dipped into the water, and the depth of what was left showed the hour. Sometimes the water dropped into another jar in which a block of wood was floating, the block rising as the hours went on. Once in awhile, some very rich man had a clepsydra that sounded a musical note at every hour.

"Another way of measuring time among the ancients was by the sand, or hour-glass. This was made of pear-shaped bits of hollow glass with a very small opening between them. It held just sand enough to run from the upper into the lower pear in the space of one hour. The glass was then turned the other side up and the sand ran back, also taking an hour. You have seen glasses of this kind where the sand runs out in three minutes. They are used for boiling eggs. King Charlemagne, a thousand years ago, had a glass of this kind that ran for twelve hours without turning. It was marked on the outside with

red lines to show the escape of the sand. Hour-glasses were so common after this that they were carried in the pocket like watches. Every minister had one to mark the length of his sermon, which was a very serious matter in England during the protectorate of Cromwell, very few sermons being as short as one hour. It is said of one minister that when the sand ran out of his glass, he turned it over, saying, "I know that you are all good fellows, so let's have another glass." Once, when the preacher had turned his glass a second time, showing that he had already preached two hours, the sexton asked him to lock the door and put the key on the nail when he was through, because the few people that were left wanted to go home to dinner. We also read that, in the early history of New York, the soldiers who defended the city used hour-glasses to tell when they should go on guard."

GREAT COST OF THE FIRST PENS.

It is only a few years since Bulwer gave expression to the thought that "the pen is mightier than the sword;" yet in the short time which has since elapsed, these words have acquired a new truth and a new application; the pen has conquered the sword in the field of commerce, as completely as it had formerly triumphed in the fields of high policy and world government. The little civilizer (as it may well be called) is now in every hand; but within the memory of many men still living the steel pen was simply a curious and costly toy, noticeable as an ingenious mechanical fad, but not at all as an invention likely to come into practical use. The earliest form of this article was certainly not promising. A piece of sheet steel was bent into a tubular form, and cut or filed away to imitate the shape of a quill pen, the junction of the two edges forming the nib, which, of course, extended all up the back of the pen. These were known as early as 1810, but were regarded as articles *de luxe* to be given away as presents, and not for use. They were highly polished, perhaps gilt or silvered, and sold for as much as five shillings each. In 1824 Mr. James Perry, the founder of a system of education once famous as the "Perryan" system, took up the steel pen as a practical invention, and by indomitable energy overcame the difficulties in its construction and the objections to its use. He patented several varieties, and spared no expense to attain perfection. His brother informed Mr. Samuel Timmins, of Birmingham, that he paid seven shillings per pound for his steel, and five shillings per pen to the first workmen he employed, and that for years afterward the price given to his workmen was thirty-six shillings per gross.—*Exchange.*

DO DOGS COUNT?

If the following canine story, published in the *St. Nicholas*, be true, one would conclude that the dog referred to in the narrative could count, or else that he possessed some other remarkable trait which enabled him to discern that one of the drove was missing. Is it not possible that he made the discovery in the same manner that we miss one from the family group? Is it by count that we miss father or mother, brother or sister, or any familiar face from the home circle? How is it with the dog? Can the readers of the INSTRUCTOR tell? The story reads:—

"Old Fetch was a shepherd dog that lived in the Highlands of the Hudson. His master kept nearly a dozen cows, and they ranged at will among the hills during the day. When the sun was low in the west, his master would say to his dog, 'Bring the cows home;' and it was because the dog did this task so well, that he was called Fetch. He would run to a flat rock and hold his ear down close to it, having learned that he could thus catch the far off tinkle of the cow-bells better than any other way. If he could not hear them, he would range about until he did, and then he was off like a shot in the direction of the sound.

"One sultry day he departed as usual upon his evening task. From scattered, shady, and grassy nooks, he at last gathered all the cattle into a mountain road, leading to the distant barnyard.

"One of the cows was known to be a little perverse, and on that evening she gave fresh evidence of willfulness. A part of the road ran through a low, moist spot bordered by a thicket of black alder, into which this cow pushed her way, and stood quietly. The others passed on, followed some distance in the rear by Fetch.

"As the cows approached the barnyard gate, he quickened his pace, and hurried forward, as if to say, 'I'm here, attending to business.' But his complacency was disturbed as the cows filed through the gate. He whined a little, and growled a little, attracting his master's attention. Then he went to the high fence surrounding the yard, and standing on his hind feet peered between two of the rails. After looking at the herd carefully for a time, he started off down the road again on a full run. His master now observed that one of the cows was missing, and he sat down on a rock to see what Fetch was going to do about it. Before very long he heard the furious tinkling of a bell, and soon Fetch appeared bringing in the perverse cow at a rapid pace, hastening her on by frequently leaping up and catching her ear in his teeth. After leading the cow through the gate in a way that she did not soon forget, Fetch looked after her a moment with the air of one remarking to himself, 'You'll not try that trick again,' and then he lay down quietly to cool off in time for supper."

A ROCKING STONE.

WHILE on a recent excursion in the vicinity of West Farms, New York, the Hyatt Chapter of the Agassiz Association paid a visit to the celebrated balancing rock of that locality. This rock is the result of a glacial action, and measurements proved it to be 29 feet 7½ inches in circumference, mean altitude 7 feet 7 inches, 6 feet on one side and 9 feet on the other. It is composed principally of a grayish granite, and the imprinted lines are plainly discernible. Its weight is estimated at 30 tons, and yet it is so evenly balanced in its rock-bed socket that the smallest member of the party, a lad of 12 years, was able, with one finger of his left hand, to gently rock it to and fro.—*Christian Weekly.*

THE oldest pieces of wrought iron which are known are probably the sickles which were found by Belzoni, under the pedestal of the Sphinx, in Karnac, near Thebes; the blades which Wyse found imbedded in the wall of the Great Pyramid; and the piece of a saw which Layard dug up at Nimrod. These remains are now owned by the British Museum.

The Sabbath-School.

FIFTH SABBATH IN JULY.

IMPORTANT BIBLE SUBJECTS.

LESSON 15.—REVIEW.

1. WHAT is sin? 1 John 3:4.
2. In what condition are all the world? Rom. 3:23.
3. Then in what service are all men? Rom. 6:16, 17.
4. If men are overcome by sin, in what condition are they?—*In bondage.* 2 Peter 2:19.
5. What is it that declares that all men are thus in bondage? Rom. 3:19.
6. What are the works of the flesh? Gal. 5:19-21.
7. What are the fruits of the Spirit? Gal. 5:22, 23.
8. With what are the fruits of the Spirit in harmony?
9. Then of what must the works of the flesh be the transgression?
10. In what condition are those who are *not* led by the Spirit? Gal. 5:18.
11. Then what is it to be "under the law"?
12. In order to redeem men, what position was it necessary for Christ to take? Heb. 2:17.
13. Then since he came to redeem sinners, those under the law, how was he made? Gal. 4:4, 5.
14. Was Christ indeed counted as a sinner? 2 Cor. 5:21; Isa. 53:12.
15. What curse is pronounced upon transgressors of the law? Gen. 2:17; Rom. 6:23.
16. How did Christ redeem us from this curse? Gal. 3:13.
17. For what purpose did Christ thus take upon himself sin and death? 2 Cor. 5:21, last clause.
18. What is the righteousness of God? Isa. 51:6, 7.
19. Since "in Christ" we become doers of the law, what does that insure to us? Matt. 19:17, last part.
20. What then may we say that Christ is to us? 1 Cor. 1:30.

FELLOW-HELPERS.

DAVID had set his heart upon building a house for the Lord, and doubtless experienced a pang of keenest disappointment when he found himself debarred by the divine decree.

But, after all, he had dedicated to this sacred service treasures of gold and silver, amounting, at the very lowest estimate, to not less than six hundred millions of dollars. Surely such a contributor had no small agency in the erection of the house, even though he himself was not permitted to see it rise. So many a man has gone to his grave, lamenting deeply his failure to achieve the results for God and humanity upon which he had set his heart and hope, and yet he accumulated the materials, prepared the way, and made the doing possible by some God-ordained successor. Adoniram Judson saw comparatively little of the fruits of his labors; but what sowing he did, what foundations he laid! and the converts gathered in to-day in that far-away land where he toiled so long, are as truly his converts as though, with his own hands, he had baptized them.

Old Dr. Stoughton gave the best years of his life to the founding and fostering of a school of the prophets, and died at last of a broken heart, because he could not make it grow. And yet a casual sermon which he preached one night in a farmer's house was instrumental in the conversion of a flaxen-haired boy, named John P. Crozer, who was to become a prince in Israel, and whose wealth was to found the well-known Crozer Theological Seminary.

God moves in a mysterious way his wonders to perform. And what matters it what part we have in God's great plan, so we perform the part assigned us, and perform it well. One clears the way, and another builds; one gathers materials, and another brings them into requisition; one soweth, and another reapeth; and yet both of them shall rejoice together, and equally rejoice, if with equal fidelity they have done their work. David, with a touch of exquisite pathos, said to Solomon, "My son, it was in my mind to build a house unto the name of the Lord, my God," but the Lord had said to David, in substance, what he had previously said to another of his ancient servants, "Should it be according to thy mind?" God upsets our plans, and yet consummates them; defeats our purposes, yet credits us with our purposes, carries them on through other agencies, and then crowns them with victory, and us with glory.

There never was a finer attitude or utterance than that of John the Baptist, when, having prepared the way for Christ's coming, he meekly stands aside, delivers over his disciples to the leadership of another, and declaring his willingness to be anything or nothing, only so that Christ might be all in all. We fear that in much of our so-called Christian work there is not a little of self-consciousness, and self-will, and self-glorification, unwittingly mixed. Let us learn to rejoice in the work, even more than in our share of the work; and let us also be comforted with the assurance that our labor shall not be in vain in the Lord, and that even after we rest from our labors, our works shall follow us.—*Baptist Teacher.*

I HAVE been benefited by praying for others, for by making an errand to God for them, I have gotten something for myself.—*Rutherford.*

Our Scrap-Book.

UNILLUMINED.

THE human mind on which no hallowed light
Shines from the sphere beyond the starry train,
Is like the dial's gilded disk at night,
Whose cunning tracery exists in vain.

—William Cullen Bryant.

DO PLANTS HAVE NERVES?

You have read in the Scrap-Book of many strange plants, but perhaps of none any more interesting than a class of plants that are known to shrink at the least disturbance, and with which we think you would be very much amused. The one known as the sensitive plant, some of you may have seen. Then there are others just as curious, if not more so. One, the telegraph plant of Bengal, is described as a novel affair. A writer in the *Sunday-School Advocate* says:—

"Its leaflets keep moving without being touched. They go steadily on, one leaflet being up while the other is down, like a seesaw. Sometimes, when the stalks are twisted, they go round and round. When the sun comes on them, they move more quickly; and if they are held, or get stuck, so that for awhile they cannot move, as soon as they get free they set off all the faster, to make up for lost time."

Of the sensitive plant, the same writer says:—

"This plant has four leaflets on a stalk; each leaflet bears about twelve pairs of smaller leaflets spread out flat. "Touch one gently with your finger. Almost before your hand has left it, it has begun to move. All the leaflets stand up straight, and then bend toward one another, and close up; the stalk droops down, instead of standing upright, just as leaves do when they want water. But watch a minute, and you will see it gradually unfold and stand up again, as it did before."

"Now touch it again; it will fold up and droop just as it did the first time, only it will take longer about it. Then it will unfold again, more slowly than before."

"Every time you touch it, it will get a little slower in its movements, until at last it moves so very slowly that you will get tired of watching it. Poor thing! it is tired, just as people who start out walking very fast indeed, get slower and slower, till, by the time they reach home again, they are only crawling."

After naming the peculiarities of some other members of this delicate class of plants, it calls the Indian Camrunga tree the most sensitive of all, and tells some of its odd ways, like the following:—

"The leaves grow like a feather, that is, a stalk with a number of leaflets on each side. If you just touch the stalk with your finger-nail, all the leaflets will move downward, fill their undersides almost touch, and the whole leaf will droop. If you touch all the leaflets on one side very gently, they will droop, while their opposite neighbors remain stationary; or if you like, you can touch every other leaflet, and leave the alternate ones standing; in fact, there is no end to the amusement they afford."

"When it begins to get dark, the leaves go to bed—that is to say, they droop, till their undersides quite touch; so you see they move more to please themselves at night than they did during the day from being touched."

HELIOGRAPHY.

HELIOGRAPHY is defined by the *Inter-Ocean* as—

"A system of telegraphing by mirrors which flash the rays of the sun. It is said that the idea of conveying signals in this manner was known to the ancients, and was employed by Alexander the Great, 333 B. C. As the method can only be employed to advantage in places where the sky is free from clouds and the atmosphere quite clear for long periods of time, it has seldom been extensively used in the armies of northern countries, but it is a method that has great advantages when it can be employed."

"The British army use the heliostat, an instrument which was first invented by a Hollander early in the eighteenth century, and also the heliograph, which was the invention of Mr. Mance of the Persian telegraph service, in 1875. The instruments differ somewhat in construction, but their results are the same. They produce signals by causing a reflected ray of the sun to appear and disappear alternately at a distant point, the space of time between the appearance and disappearance of the ray being carried in length so as to produce the combination of long and short signals, known as the Morse alphabet. The distance to which signals can be sent in this way depends on the size of the mirror used and the angle of reflection of the rays, but even more upon the state of the atmosphere; so that in exceptionally clear weather they can be seen at enormous distances. Glass mirrors are employed with best effect in making the flash visible to great distances. From the Himalyas a five inch mirror has been found to give distinct signals at a distance of sixty miles; but if the air was at all misty, a very much larger mirror had to be employed. In addition to its value in time of war, the heliograph has been found very useful in defining distant points for large surveys, and has also been used by the astronomers at the Cape of Good Hope in verifying the arc of the meridian."

CHINESE MEASURES OF TIME.

THE *Christian Weekly* recently published an article from the *National Baptist* on "Chinese Measures of Time," some paragraphs of which may interest the readers of the INSTRUCTOR. The writer says:—

"The longest fixed measure of time among the Chinese is the cycle of sixty years invented by Nall the Great, under command of the emperor Hwangti, 2,637 years before Christ. This sexagenary cycle is the only Chinese measure of years, and is used not only throughout China, but by the Mongols, the Koreans, the Japanese, the Loochooans, the Annamese, and the Siamese. Beginning 2,637 B. C., their 75th great cycle ended in 1863 with 4,500 years of Chinese annals."

"The Chinese year contains either twelve or thirteen months, which correspond closely with the moon's changes. The first day of the month is new moon, the middle of the month full moon, and the end of the month old moon. There are either twenty-nine or thirty days in a month, and the number of days in a certain month may be differ-

ent in different years. The calendar for the year tells the number of days in each month for that year, and when one wishes to know whether there are twenty-nine or thirty days in the month, he inquires, saying, 'Is this month a greater or lesser one?' One year in every three has an intercalary month, some month being repeated, and called the second fifth month or the second eighth month, as the case may be. Any month, except the first or the twelfth, may be thus repeated. There is no division of time into weeks, and the native Christian keeps his Sabbath in the midst of a populace pursuing week-day vocations. Days are designated solely by their order in the month, as the sixth, the tenth, etc.

"The days, beginning at 11 o'clock P. M., are divided into twelve periods. These two-hour periods are again divided each into eight periods. This period, fifteen minutes in length, is the shortest fixed Chinese measure of time."

"Contrivances for marking the time are few and simple. In the city of Canton there is a very ancient bronze clepsydra, in which the water leaks from a large ornate vase and fills a smaller vase in just two hours, while the leakage from the lesser vase fills one an eighth as large in just fifteen minutes. I have not heard of other than this one water-clock in the empire. Portable sun-dials are common in the shops, and so must be in demand, though they are not often seen in practical use."

"When the sun is visible, the Chinese judge very accurately of the time by its height in the heavens. In conversation, short periods are denoted by all sorts of familiar incidents, such as 'The time it takes to eat a meal,' or, 'As long as it takes an incense-stick to burn out,' etc. Hour and minute-glasses are unknown, but pastilles [a small cone made of gum, benzoin, cinnamon and other aromatics, to be burned for cleansing and scenting the air of a room] are sometimes burned when a similar brief length of time needs to be marked."

American clocks are now generally seen among the *bric-a-brac* of wealthy Chinamen, but the masses of the people have no time-pieces. As a consequence, appointments are made with a broad margin for waiting. Chapel services are fixed at the country stations for the Sabbath morning, and when all who are expected arrive, the preacher begins the service."

HOW DWELLINGS WERE LIGHTED ANCIENTLY.

THE *Inter-Ocean*, in answering the question, "What was used before glass in windows?" says:—

"In the Orient and the old times, windows rarely, if ever, opened upon the street, but upon the court, as may be seen to this day, and as noted by most travelers. Such windows are provided with lattices or jalousies. Instead of window glass, the Chinese use a thin stuff varnished with shining lac, polished oyster-shells, and thin plates of horn. Among the Romans, windows were originally closed with shutters; afterward they were made of a transparent stone, which is believed to have been mica; in the second century they used horn. It is held by some high authorities there are traces of glass windows having been used in Pompeii, but there are others equally high who claim it to be very doubtful."

"Glass for windows began to be used about the third century, as there are allusions to it by Lacantius and by St. Jerome and Gregory of Tours in the fourth century. The Venerable Bede says that glass windows were first introduced into Britain in 674, but then and for many years after, the use of window glass was confined to ecclesiastical structures. In the twelfth century, houses in England that were provided with glass windows were regarded as magnificent; and even in the sixteenth century in England and in the seventeenth in Scotland only the dwellings of the wealthy were provided with glass. In France, in the fourteenth century, its use was becoming more general among the wealthy classes. In ancient temple architecture, windows were unknown, the light for the most part having been obtained from openings in the roof. In the early Gothic or Norman style the windows were small and comparatively stunted, simple openings, with semi-circular heads. In the early English style the windows were more elongated and had pointed arches."

MUSICAL FISHES.

THE fishes are supposed to have no voice at all; and indeed, this is the case with most of them. But there are exceptions to every rule; and so it is with the fish. One fish utters a cry when it is seized. There is another which wails, like a child, when it is taken from the water. Another fish makes a sound as it swims—that is, at one season of the year; all the rest of the year it is silent. But what do you think of a fish that sings?

There is a little white fish, with blue spots on its back, which lives in America, and which can actually make a sound like music. A traveler was one day lying on the beach resting himself, when suddenly he heard a sound; it was like music in the distance. He got up and looked about him; but nothing was to be seen. A boatman was close by, and he asked him if he had heard anything. "Yes," said the boatman; "I heard a fish singing." The fish was called by some people the "siren;" by others *musico*, or "musician." The traveler pushed off in a boat, to hear the music better. He heard a number of voices singing together. It was like a concert in the water. The sound was a little like an organ playing at some distance.

These musical fishes are said to begin to sing at sunset, and keep on singing during the night. They are not very timid, and will continue their music, even if people are standing by to listen.—*The Sea and its Wonders.*

THE names for gypsies vary in different languages. In Poland, they are called Zingani; in Italy, Zingari; in Spain, Gitanos; in France, Bohemians; in Germany, Zigeuner. The Persians, it is stated, apply to them a name meaning "Black Indians." Their most ancient name is that of Sinte, which is supposed to be connected with Sind, the native name for the Indus.

NOVA SCOTIA has a known coal area of nearly seven hundred square miles, or nearly twice the area of the Pennsylvania anthracite fields. Some of the Nova Scotia fields have a greater thickness of workable coal than probably exists anywhere else in the world.

THE eccentric Lord Holland, of the reign of William III., used to give his horses a weekly concert in a covered gallery specially erected for the purpose. He maintained that it cheered their hearts and improved their temper, and an eye-witness said, "They seemed to be greatly delighted therewith."